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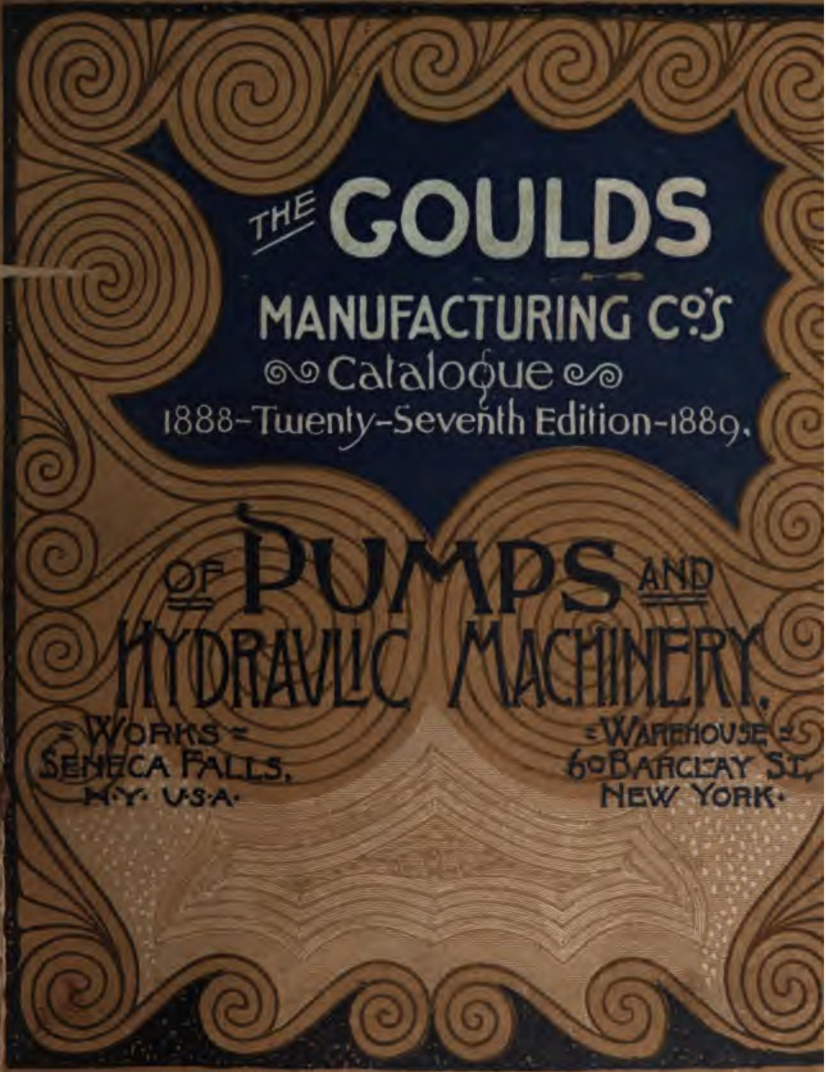

THE GOULDS MANUFACTURING Co's

Catalogue

1888-Twenty-Seventh Edition-1889.

OF PUMPS AND HYDRAULIC MACHINERY.

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NEW YORK.

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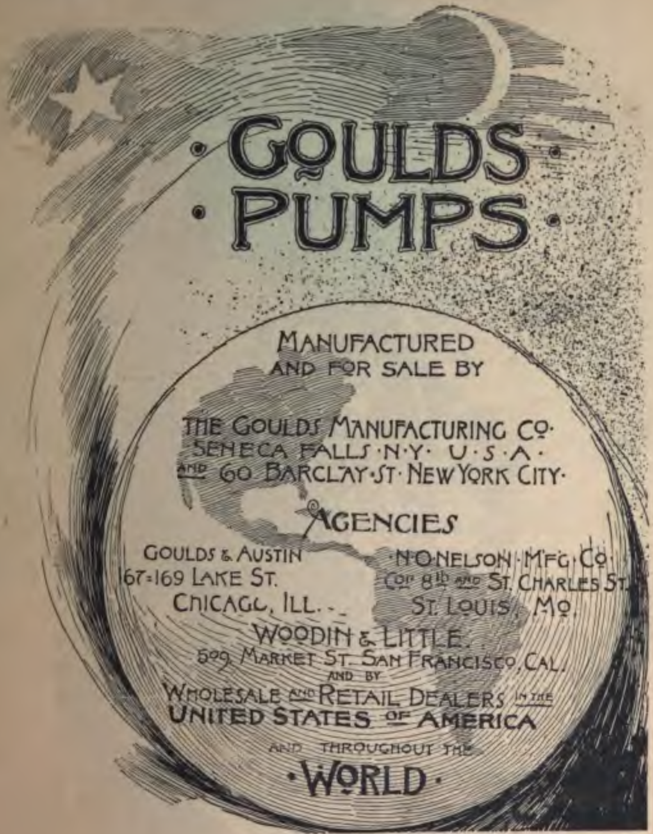

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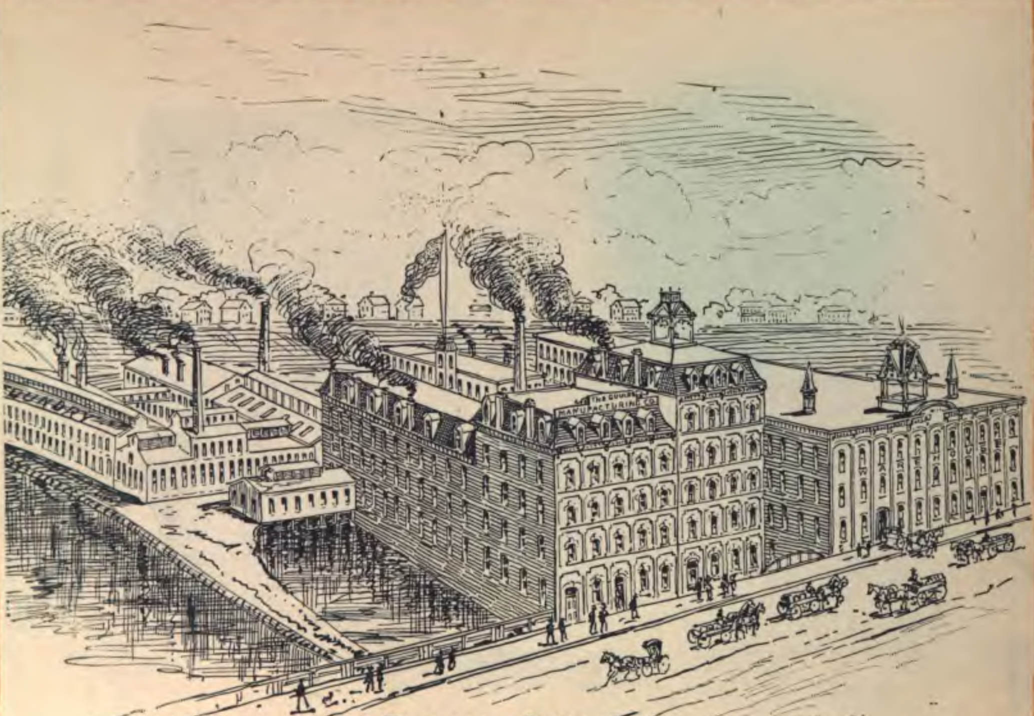

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THE GOULDS M'F'G CO'S

ILLUSTRATED AND DESCRIPTIVE

Catalogue · and · Price · List

OF

PUMPS, ENGINES, RAMS, AND HYDRAULIC MACHINERY,

ADAPTED FOR

MANUAL, ANIMAL, WIND, WATER, STEAM,
OIL, GAS, AND ELECTRIC POWER.

· **Works** ·
SENECA FALLS, N. Y., U. S. A.

· **Salesrooms** ·
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SINCE publishing our last general catalogue we have issued and distribu
editions of an abridged or partial catalogue containing most of the s
more salable Pumps that we manufacture and a Spanish catalogue representi
fully our entire line of manufactures, all of which books—about six inches s
have been received by our friends so kindly and with so many warm expres
satisfaction and approval on the score of convenience, etc., that we have de
put out a catalogue of corresponding dimensions, containing illustrations,
tions, dimensions, prices, etc., etc., of everything we build, with the hope,
aged and strengthened by the numerous commendations of our other boo
this will be found to answer all the purposes of a larger book and from its dim
bulk and size be more available as a desk and pocket reference book.

We have not been idle since we presented our last catalogue, as will be
ered by the many new illustrations of Pumps, all of which we hope will be in
more or less. While designing new Pumps we have not been unmindful
the paramount necessity of bettering our facilities so we could turn out our
par excellence, and the increased demand for the Gould Pump has been a g
evidence of success in our efforts to build the best and most Pumps of an
facturer in our branch of business

To keep in advance of the times and our competitors has always been
and we thank our many friends for their steadfast and continued relations
which we shall hope always to deserve.

Very cordially,

THE GOULDS M'F'G

JAMES H. GOULD, - - - - - - PRESIDENT.
SEABURY S. GOULD, - TREASURER AND SECRETARY.

NEW YORK SALESROOMS: No. 60 Barclay Street.

USEFUL NOTES

ON

PUMPS AND HYDRAULIC MACHINERY.

It will be our endeavor, under this head, to treat of facts and conditions under which our Pumps may be operated rather than indulge in the too common and fulsome praise which the long and favorable standing of our goods, at home and abroad, render unnecessary. There are certain conditions requisite to the successful operation of any Pumps, and of these we will speak first.

SUCTION PIPE.—This is the pipe below the lower valves, whether the valves are in the Pump itself or in the cylinder a number of feet below the Pump (yet above the surface of the water), and should not exceed twenty-five feet in vertical height, as water cannot be raised over thirty feet, theoretically, by atmospheric pressure. This pipe may, however, extend almost any distance horizontally, if care is taken that it fall evenly along its entire length from Pump or cylinder to water supply. In this connection, as well as in long vertical suction pipes, we urge the use of a foot or check valve, providing pipe is protected from frost, as it retains water when Pump is not in use. Properly, the suction pipe of single-acting cylinders and Pumps should be half the diameter of working barrel, and in long pipes, or with Pumps working fast, it may be increased, as is also true of double-acting Pumps.

The following may be laid down as a safe rule for suction pipe:

SIZE OF PUMP BARREL OR CYLINDER.

Size of cylinder, -	2 in.	2½ in.	3 in.	3½ in.	4 in.	5 in.	6 in.
Size of suction, -	1¼ in.	1¼ in.	1½ in.	2 in.	2½ in.	3 in.	4 in.

These sizes hold good for double-barrel Pumps, as each barrel draws alternately. Turns or elbows should be avoided as far as possible.

CONNECTING OR DELIVERY PIPES.—The first term is applied only to pipe between Pump standard and lower barrel or cylinder, and the last to same pipe as well, but more especially to describe pipe carrying water beyond Pump to any point. These pipes in single-acting Pumps may be a trifle smaller than suction pipe. I double-acting Pumps they should be same size, and care should be exercised that bot are *amply large.*

HOT WATER.—No Pump will draft hot liquids any distance for the reason that the vapor or steam rising from the liquid passes through the suction pipe into the Pump and fills it with vapor instead of water. Therefore, for pumping hot liquids the Pump should be placed as near as practicable, forcing the liquid upward instead of lifting it by suction. A hot-water Pump always requires metal valves throughout, and should be so ordered.

POWER.—Power is measured by the work performed. A gallon of water weighs about eight and one-half pounds. Therefore, if a Pump is passing ten gallons of water per minute, and lifting it one foot, eighty-five foot pounds per minute of power will be required to do it; lifting it twenty feet, twenty times eighty-five pounds, and so on.

A nominal horse-power means the power required to lift 33,000 pounds one foot in one minute, although actual experience proves that an ordinary horse working continuously will not develop nearly this power, and, probably, 25,000 pounds is a nearer estimate. The power of a man working continuously is variously estimated from one-fifth to one-eighth that of a horse, but think the latter figure a safer one than the former.

The conditions are somewhat changed by the number of strokes at which the Pump barrel is worked. We give among last pages of this book a few concise rules for computing power necessary to raise any quantity of water any distance.

QUANTITY.—In connection with each Pump will be found its diameter and length of stroke, together with the fraction or number of gallons it will pass per stroke or revolution (a double stroke), and to ascertain the number of gallons per minute delivered, multiply this quantity by the number of strokes or revolutions the Pump is working.

It will be noticed, however, that we do not attempt to give a close decimal in these tables, and also submit several other capacity tables of our Pumps working under varying conditions, which will give a more comprehensive idea of the work performed in a given time than might suggest itself without making actual computation.

We also submit a table of areas and rules for computing quantity of water any Pump will pass, inasmuch as in a few instances we have been unable to include the capacity in our price tables.

ESTIMATES.—We are always glad to give our customers the benefit of our advice on all practical questions relating to Pumps, and while requirements of each may be different in detail, as a general rule, we should be advised on the following points: Depth and diameter of well, pit or stream; depth of water in well, pit or stream; height to which water is to be raised, that is, from surface of water to point of delivery; quantity required in a given time; power available or preferred.

NOTE

◆

THIS PRICE LIST CANCELS all former ones conflicting with it, and is subject to change without notice.

ALL ORDERS will be filled from stock as per Catalogue unless we are expressly directed otherwise, when we are sometimes obliged to ask additional time to manufacture goods and charge for extra expense, if any, involved.

IN MAKING REFERENCE to any of our goods, either for the purpose of inquiry or in orders, always give the Fig. we have adopted in connection with each article.

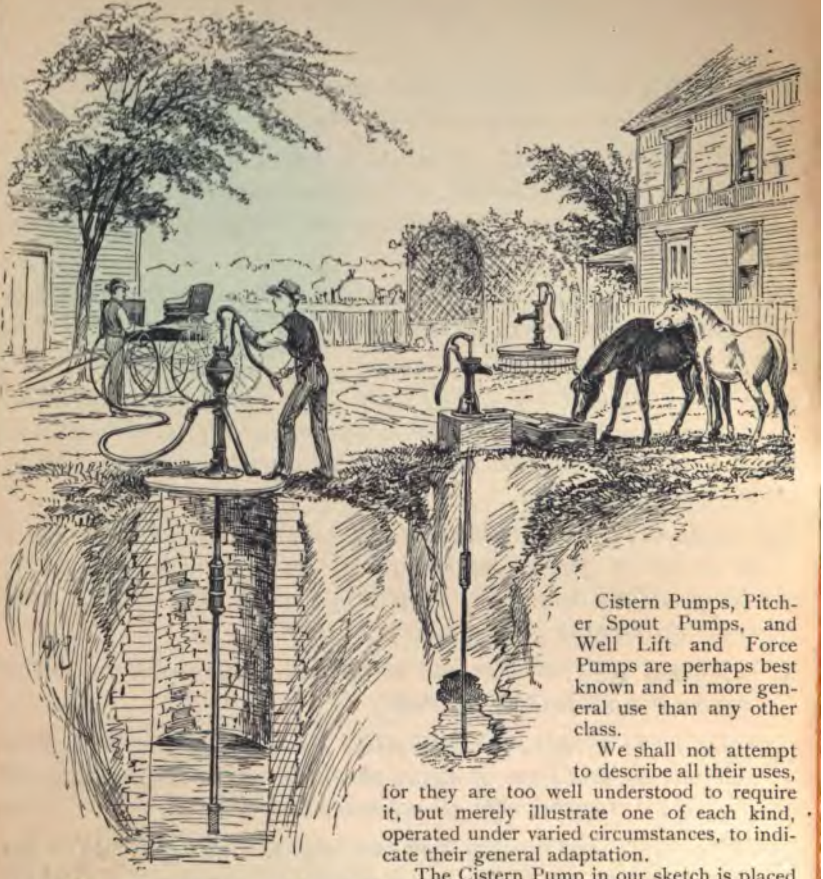
GENERAL DISCOUNT SHEETS will be furnished only to the trade, and are likewise subject to change without notice. Customers will find it to their advantage in requesting estimates to furnish us specifications of goods required.

NO CLAIMS FOR ALLOWANCE will be entertained unless presented on receipt of goods; neither will we hold ourselves responsible, whether goods are sold F. O. B. or freight paid, for breakages after goods are delivered in good condition to the R. R. Co.

NO GOODS RETURNED will be allowed credit unless by special agreement made prior to shipment.

GOODS RETURNED FOR REPAIRS should bear the sender's name and address, and letter of advice should be mailed stating when and how forwarded, together with all necessary instructions.

WE DO NOT send our goods on sale, approval, or trial. With information in hand as to requirements and conditions of work we hall be pleased to make recommendations and estimates on any Pumpng outfit, and if Pumps are properly set up and cared for will guarantee heir performing all we claim for them.



Cistern Pumps, Pitcher Spout Pumps, and Well Lift and Force Pumps are perhaps best known and in more general use than any other class.

We shall not attempt to describe all their uses, for they are too well understood to require it, but merely illustrate one of each kind, operated under varied circumstances, to indicate their general adaptation.

The Cistern Pump in our sketch is placed over a cistern near the house, although it may perhaps be oftener situated under cover in cold climates.

The Pitcher Spout Pump is largely used in this country for same purposes as the Cistern Pump, and, in addition, is many times used in warm climates over shallow dug or driven wells, as shown in our illustration.

These Pumps can be used in any place where the water is not required to be lifted over 25 feet vertically, although suction pipe may be extended almost any distance horizontally.

The Well Force Pump shown in operation is but one of our many styles of Lift and Force Pumps which can be adapted, by changing style and position of cylinder, for dug, driven, or bored wells of any depth.

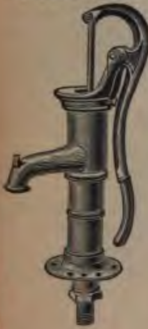
They are usually placed, however, over shallow wells of not more than 30 feet depth, and are perfectly anti-freezing. When cylinders are not placed in the water we advise the use of a check or foot valve at end of suction pipe, as it keeps this part filled with water, which can be discharged at spout with one or two strokes of lever.

These Pumps are fully described on pages 20 to 27.

GOULDS REVOLVING TOP CISTERN PUMP.

WITH SCREW BASE. CYLINDER BORED AND POLISHED.

FIG. 198.



The cut represents our **Fig. 198,** one of several styles of our Cistern Pumps. The cylinder screws into the base instead of being bolted to it, as in all our other Cistern Pumps. In all other respects it is the same as **Figs. 199** and **200.** We make eight sizes of this kind of Pump, as follows. Fitted for lead or wrought-iron pipe, or both, as ordered:

FIG. 198. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Gal. per Stroke.	IRON.		BRASS.	
				Cipher.	Price.	Cipher.	Price.
0	2 in.	1 in.	1-12	Abet	$3.50	Vicarial	$7.75
1	2¼ "	1 "	1-10	Able	4.00	Vicarage	8.75
2	2½ "	1¼ "	1-8	Ably	4.50	Vice	10.50
3	2¾ "	1¼ "	1-7	Abut	5.00	Viceroy	14.00
4	3 "	1¼ "	1-6	Ace	5.50	Viciate	17.00
5	3¼ "	1½ "	1-5	Ache	6.50	Vicinage	21.00
6	3½ "	1½ or 2 "	1-4	Acid	8.00	Vicinal	27.00
8	4 "	2 "	1-3	Acme	10.00	Vicinity	35.00

The brass Pumps have all parts brass except lever, bearer, and base.

We can fit any of our Cistern Pumps with brass lower valves and metal packing to adapt them for hot water, at extra net prices given below.

No. 0.	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 8.
$1.25	$1.25	$1.50	$1.65	$1.75	$2.00	$2.25	$2.50

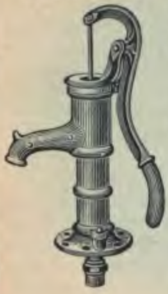
We can pack in an ordinary hogshead or cask, of this and similar Pumps, about the following, according to sizes:

No. 0.	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 8.
40	36	32	24	20	15	12	10

GOULDS REVOLVING TOP CISTERN PUMP.

WITH BOLT BASE. CYLINDER BORED AND POLISHED.

FIG. 199.



The cut exhibits our **Fig. 199.** The base is almost flat; the brass tube and flange form the valve seat, and screw threads are cut on the extremity of tube to take wrought-iron pipe coupling where gas pipe is used, or a cast-iron nut with brass tube where lead pipe is used. Fitted for lead or wrought-iron pipe, or both, as ordered.

FIG. 199. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	IRON.		BRASS CYL.		BRASS	
			Cipher.	Price.	Cipher.	Price.	Cipher.	Price.
0	2 in.	1 in.	Acre	$3.50	Vicious	$5.50	Viduity	$7.75
1	2¼ "	1 "	Act	4.00	Viscount	6.00	Vie	8.75
2	2½ "	1¼ "	Add	4.50	Victim	7.00	View	10.50
3	2¾ "	1¼ "	Afar	5.00	Victor	8.00	Viewed	14.00
4	3 "	1¼ "	Aft	5.50	Victory	10.00	Viewer	17.00
5	3¼ "	1½ "	Age	6.50	Victress	13.00	Vigil	21.00
6	3½ "	1½ "	Aid	8.00	Victuals	18.00	Vigilant	27.00
8	4 "	2 "	Aim	10.00	Vidual	25.00	Vignet	35.00

GOULDS REVOLVING TOP CISTERN PUMP.

WITH BOLT BASE. CYLINDER BORED AND POLISHED.

The cut shows our **Fig. 200,** with broad bearing and high base.

The cylinder and base are held together with two strong bolts, with leather packing between, which have only to be unscrewed to give free access to the lower valve. A substantial hub on the under side of the base has threads on it for coupling on an iron nut with gas pipe threads cut in it for connecting wrought-iron pipe, while with each Pump is a brass tube for soldering lead pipe.

FIG. 200.

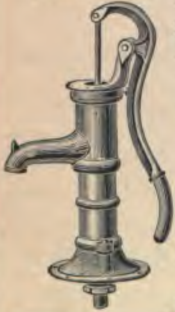


FIG. 200. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	IRON.		BRASS CYL.		BRASS.	
			Cipher.	Price.	Cipher.	Price.	Cipher.	Price.
0	2 in.	1 in.	Air	$3.50	Ember	$5.50	Endow	$7.75
1	2¼ "	1 "	Airy	4.00	Emboss	6.00	Enjoy	8.75
2	2½ "	1¼ "	Akin	4.50	Emery	7.00	Ennui	10.50
3	2¾ "	1¼ "	Alas	5.00	Emit	8.00	Enter	14.00
4	3 "	1¼ "	All	5.50	Empty	10.00	Entry	17.00
5	3¼ "	1½ "	Ally	6.50	Enact	13.00	Envoy	21.00
6	3½ "	1½ "	Alms	8.00	End	18.00	Envy	27.00
8	4 "	2 "	Also	10.00	Vigor	25.00	Vigorous	35.00

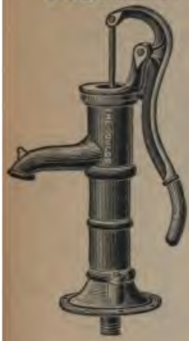
The *brass Pumps* have *all parts brass*, except the lever, bearer, and base.

For prices of brass lower valves and metal packing to adapt above Pumps for hot Water, see page 9.

GOULDS REVOLVING TOP CISTERN PUMP.

WITH BOLT BASE. CYLINDER BORED AND POLISHED.

FIG. 201.



The cut represents our **Fig. 201,** another of our Cistern Pumps. It is rather taller than **Fig. 200,** but equally as strong and substantial, and has always met with much favor at the hands of the trade. As our copious description of **Fig. 200** was intended to give a general idea of all our Pumps of this class, we will refrain from further remarks, requesting a reference to that Pump for any further information. Fitted for lead or wrought-iron pipe, or both, as ordered.

FIG. 201. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Gal. per Stroke.	IRON.	
				Cipher.	Price.
0	2 in.	1 in.	1-12	Alum	$4.00
1	2¼ "	1 "	1-10	Amid	4.50
2	2½ "	1¼ "	1-8	Arc	5.00
3	2¾ "	1¼ "	1-7	Arch	5.75
4	3 "	1¼ "	1-6	Arm	6.25
5	3¼ "	1½ "	1-5	Army	6.75
6	3½ "	1½ "	1-4	Art	8.00
8	4 "	2 "	1-3	Ask	10.00

GOULDS REVOLVING TOP CISTERN PUMP.

WITH BRACKETS. CYLINDER BORED AND POLISHED.

The cut, **Fig. 202½**, represents our new style Revolving Top Cistern Pump, with brackets. This is, in many instances, a more convenient form than a Pump on base. It can be secured to the wall in any place desired, and made to take the least possible room. Fitted for either lead or wrought-iron pipe, or both, as may be preferred.

FIG. 202 1-2.

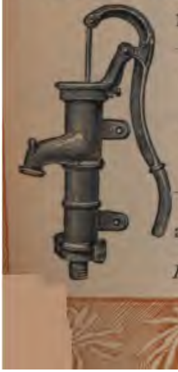


FIG. 202 1-2. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	IRON.		BRASS CYL.		BRASS.	
			Cipher.	Price.	Cipher.	Price.	Cipher.	Price.
0	2 in.	1 in.	Axe	$3.50	Epic	$5.50	Error	$7.75
1	2¼ "	1 "	Back	4.00	Epoch	6.00	Erupt	8.75
2	2½ "	1¼ "	Bad	4.50	Equal	7.00	Espy	10.50
3	2¾ "	1¼ "	Bag	5.00	Equip	8.00	Etch	14.00
4	3 "	1¼ "	Bail	5.50	Era	10.00	Ethel	17.00
5	3¼ "	1½ "	Bait	6.50	Erect	13.00	Ether	21.00
6	3½ "	1½ "	Bake	8.00	Err	18.00	Ethic	27.00

The *brass Pumps* have *all parts brass*, except the lever, bearer, and base.

For prices of brass lower valves and metal packing to adapt above *Pumps for hot water*, see page 9.

GOULDS OPEN TOP PITCHER SPOUT PUMP.

WITH REVOLVING BRAKE, BOLT FASTENINGS AND CUT-OFF BASE.

Fig. 205 shows our new style Pitcher Spout Pump. They are fitted up in the very best manner, with revolving standard or bearer, so made that by raising the lever the valves are tripped and the water all let out of the Pump.

These Pumps are arranged to be used for either lead or wrought-iron pipe, by a coupling nut fastened to the hub under the base, through which a brass soldering tube is introduced. Inside the nut are gas-pipe threads, into which iron pipe can be screwed when this connection is desired.

We can put our Patent Sand Valve Bases on these Pumps when so ordered.

FIG. 205.

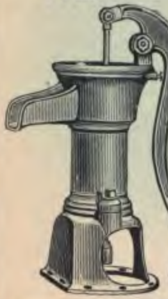


FIG. 205. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Gal. per Stroke.	Cipher.	Price.
1	2½ in.	1 in.	1-12	Bale	$4.25
2	3 "	1¼ "	1-8	Balk	4.75
3	3½ "	1¼ "	1-6	Ball	5.25
4	4 "	1½ "	1-5	Balm	5.75
5	4½ "	1½ "	3-10	Band	6.25

GOULDS CLOSED TOP PITCHER SPOUT PUMP.

WITH REVOLVING BRAKE, BOLT FASTENINGS AND CUT-OFF BASE.

Fig. 205 1-2 represents our Pitcher Spout Pump, with a *closed top*. It is often a cause of complaint with the Open Top Pitcher Pumps that they are apt to throw the water over the top when worked rather sharply. To obviate this, we have introduced a closed top with an opening only large enough for the rod to work through. In all other respects this Pump is the same as our other Pitcher Pumps.

We can put our Patent Sand Valve Bases on these Pumps when so ordered.

FIG. 205 1-2.

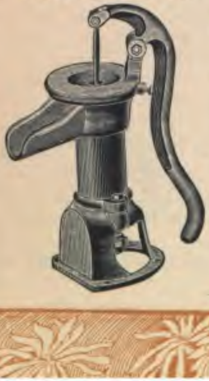


FIG. 205 1-2. Sizes, Prices, Etc.

No.	Dia Cyl.	Suc.	Gal. per Stroke.	Cipher.	Price.
1	2½ in.	1 in.	1-12	Bank	$4.25
2	3 "	1¼ "	1-8	Barb	4.75
3	3½ "	1¼ "	1-6	Bark	5.25
4	4 "	1½ "	1-5	Barn	5.75

GOULDS CLOSED SPOUT PITCHER PUMP.

WITH REVOLVING BRAKE, BOLT FASTENINGS AND CUT-OFF BASE.

Fig. 209 shows our new style Pitcher Pump with a closed spout. Thus constructed the water is confined in the spout and cannot wash over. These are made like our other Pitcher Pumps, with revolving brake, bolt fastenings and cut-off base.

These Pumps we make with both open and closed tops, as ordered, and we can also make them with our patent vacuum base at a slight increase in expense. Please state in your order whether you wish them fitted for lead or wrought-iron pipe, also whether with open or closed tops.

FIG. 209.

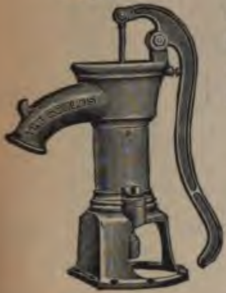


FIG. 209. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Gal. per Stroke.	Cipher.	Price.
1	2½ in.	1 in.	1-12	Wale	$4.25
2	3 "	1¼ "	1-8	Bleat	4.75
3	3½ "	1¼ "	1-6	Walk	5.25

GOULDS PATENT PITCHER SPOUT PUMP.

WITH VACUUM BASE.

Fig. 208 is the same as our **Fig. 205,** and, in addition, it has an improvement in the base of the Pump. Oftentimes in driven wells, where the soil is so tight as to make an air-tight joint around the pipe, an ordinary Pump will not work well; while with the Vacuum Base Pump all difficulty is obviated, for by creating a vacuum in the base and permitting the water to form there a reservoir, a constant supply of water is obtained to the Pump. We fit them always for wrought-iron pipe, with the thread cut in the hub of the base.

Please state in your orders whether you wish them with open or closed tops.

FIG. 208.

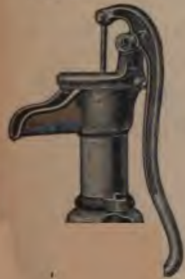


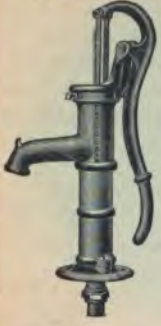
FIG. 208. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Gal. per Stroke.	Cipher.	Price.
1	2½ in.	1 in.	1-12	Bird	$4.75
2	3 "	1¼ "	1-8	Bite	5.25
3	3½ "	1¼ "	1-6	Blast	5.75

GOULDS DOUBLE ROD REVOLVING TOP CISTERN PUMP.

WITH BOLT BASE. CYLINDER BORED AND POLISHED.

FIG. 210.



The cut shows one of our Cistern Pumps, with double rods and guide rod. So constructed they work with more uniform stroke, and are, on this account, much preferred in some localities. In other respects they are just like our other Cistern Pumps.

Fitted for lead or wrought-iron pipe, or both, as ordered.

FIG. 210. Sizes, Prices, Etc.

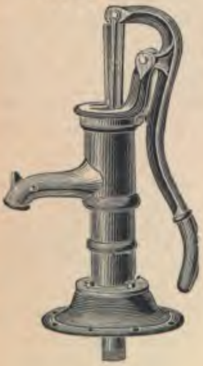
No.	Dia. Cyl.	Suc.	IRON.		BRASS CYL.		BRASS.	
			Cipher.	Price.	Cipher.	Price.	Cipher.	Price.
1	2¼ in.	1¼ in.	Scof	$5 00	Virtual	$7.00	Viscid	$9.75
2	2½ "	1¼ "	Scoff	5.50	Virtue	8.00	Viscount	11.50
4	3 "	1¼ "	Scoop	6.50	Virulent	11.00	Vise	18.00
6	3½ "	1½ "	Scope	9.00	Virus	19.00	Vishnu	28.00

For prices of brass lower valves and metal packing to adapt Pumps for hot water see page 9.

GOULDS MOLASSES, OR HOT-LIQUID PUMP.

METALLIC FITTED.

FIG. 444.



The cut represents our **Fig. 444,** built for pumping molasses, syrups of any kind, tar, oil, or any other liquids of any consistency, either hot or cold. The piston, piston rod, valves and connecting tube of the iron Pumps are made of brass, while the balance is constructed of iron. When ordered of brass, the whole Pump is made of that metal except the base, top and lever, and is so constructed that no iron is brought in contact with the medium.

When used for hot liquid we would urge placing the Pump as close to it as possible, as the vapors arising from it will qualify the vacuum produced by the Pump.

Fitted for lead or wrought-iron pipe connections as ordered.

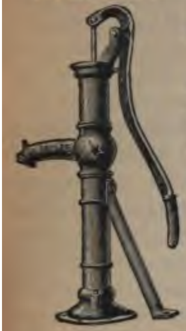
FIG. 444. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Gal. per Stroke.	IRON.		BRASS.	
				Cipher.	Price.	Cipher.	Price.
2	2½ in.	1¼ in.	1-8	Folly	$12 00	Forcep	$20.00
4	3 "	1½ "	1-6	Fond	15.00	Ford	25.00
6	3½ "	1½ "	1-4	Font	17.00	Fore	30.00
8	4 "	2 "	1-3	Food	21.00	Forge	36.00
10	4½ "	2½ "	2-5	Fop	25.00	Fork	42.00

GOULDS "SOUTHERN STAR" SUCTION PUMP.

FOR OUT-DOOR USE IN WARM CLIMATES.

FIG. 607.



We have frequent calls for a Suction and Lift Pump taller and heavier than our largest Cistern and Pitcher Pumps, and offer **Fig. 607** to meet this demand.

It is provided with our revolving fulcrum or top, and has a long heavy lever. The pump stock acts as a cylinder, in which is the plunger, and can be emptied of water by raising the lever, thus tripping valve seated on the base. Height, 40 inches.

FIG. 607. Sizes, Prices, Etc.

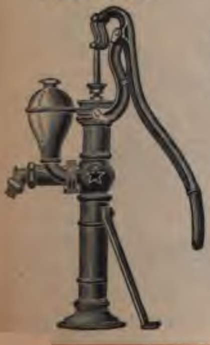
No.	Dia. Cyl.	Suc.	Stroke.	Capacity per Stroke.	Cipher.	Price.
4	3 in.	1¼ in.	6 in.	1-6 gal.	More	$8 50
5	3¼ "	1½ "	6 "	1-5 "	Morn	9.00

GOULDS "SOUTHERN STAR" SUCTION AND FORCE PUMP.

FOR OUT-DOOR USE IN WARM CLIMATES.

This Pump is about 50 inches high, has revolving brake or fulcrum, a strong, heavy lever, and is in every way calculated to render good service. A thread is cut on the end of the spout, and with each Pump is sent a half hose coupling and nut for attaching 1-inch hose.

FIG. 608.



As in **Fig. 607,** the plunger works in the stock of pump, which can be emptied of water by raising the lever, thus tripping the valve in the base. It is adapted for wells from 25 to 30 feet deep.

FIG. 608. Sizes, Prices, Etc.

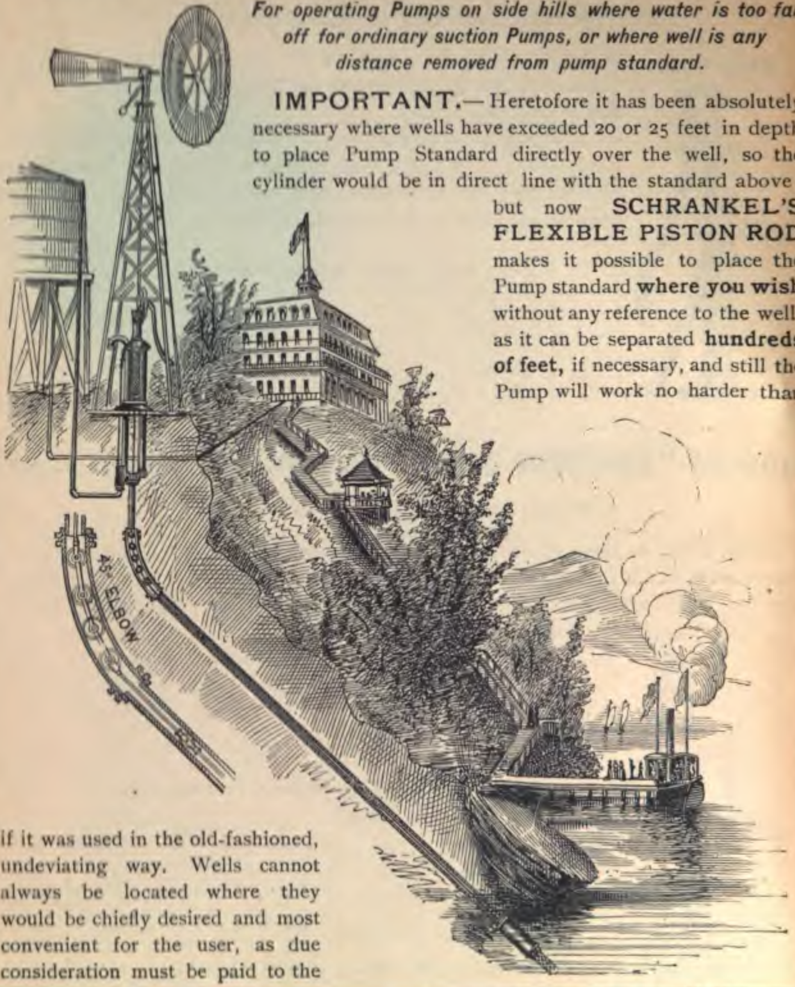
No.	Dia. Cyl.	Suc.	Stroke.	Capacity per Stroke.	Cipher.	Price.
4	3 in.	1¼ in.	6 in.	1-6 gal.	Mort	$13.00
5	3¼ "	1½ "	6 "	1-5 "	Moss	14.00
6	3½ "	1½ "	6 "	1-4 "	Most	15.00

When ordered with cock spout we add $2.50 to list price.

SCHRANKEL'S PATENT FLEXIBLE PISTON ROD AND ELBOW.

For operating Pumps on side hills where water is too far off for ordinary suction Pumps, or where well is any distance removed from pump standard.

IMPORTANT.—Heretofore it has been absolutely necessary where wells have exceeded 20 or 25 feet in depth to place Pump Standard directly over the well, so the cylinder would be in direct line with the standard above; but now **SCHRANKEL'S FLEXIBLE PISTON ROD** makes it possible to place the Pump standard **where you wish** without any reference to the well, as it can be separated **hundreds of feet,** if necessary, and still the Pump will work no harder than if it was used in the old-fashioned, undeviating way. Wells cannot always be located where they would be chiefly desired and most convenient for the user, as due consideration must be paid to the



lay of the land, availability, etc.; therefore, it is no uncommon thing to find wells in most inconvenient situations, and the Pump standard placed accordingly. This Flexible Piston Rod can be used in **any kind of wells,** open, drilled, or driven, and in connection with any kind of Pumps of the reciprocating type actuated by manual, machine, or wind power.

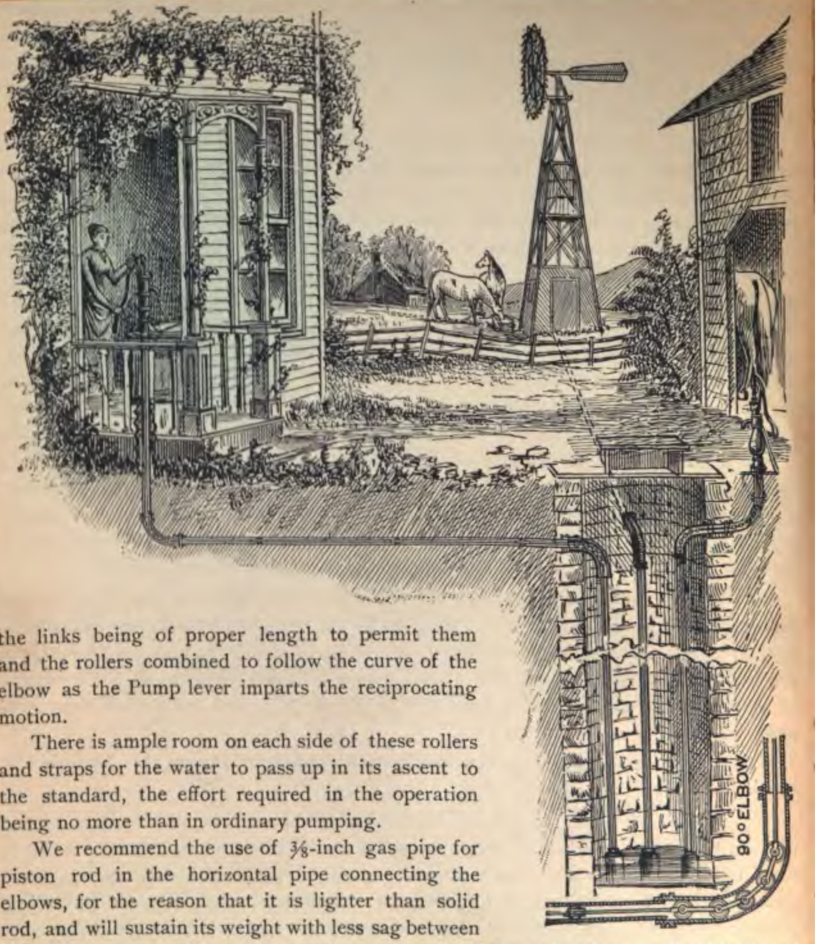
Oftentimes the owner of a fine spring of water situated at the foot of a slope has desired to utilize this water at his house or stable, but it has been impracticable to do so on account of the spring being so much below and so far away from where the water was wanted that a Pump standard could not be used over the spring, the alternative being to set a Pump at the spring and force the water up to the house at considerable trouble and expenditure of muscle. **All such conditions** can now, however, be readily met and overcome with our Flexible Piston Rod and an Elbow of suitable angle. The standard can be planted at the top of slope with a short piece of vertical pipe extending downwards far enough to drip it, and then attaching our Angular Elbow, as shown in the illustration, extending the pipe to the spring down the hill, with cylinder at its extremity, and submerged in the water. The pipe should be protected against cold weather in all cases, as it is filled with water below the drip or waste hole.

Wind-Mills, while exceedingly useful and quite as necessary in agricultural economy as the reaping machine, are not the most sightly objects, yet, notwithstanding, they are always found directly over a well if over 25 feet deep. Now the mill can be placed where most agreeable to the taste or eligible for the wind without once weighing the situation of the well, for that is rendered of secondary importance.

We also illustrate on following page the unique possibility of supplying two or three pumps from one well. Water need not be carried long distances or wells be multiplied, as formerly, for Pump standards can be set here and there on the premises, at the house, stable, barn, dairy, etc., all pipes and cylinders centring in the one well, as shown in our sketch, and a most complete, effective, and economical supply of water be procured at each place.

We will say a few words as to the **mechanical construction** of this Flexible Piston Rod and Elbow:

A 90° elbow, of which two will be required where the top of well and the bottom of Pump standard are situated in the same horizontal plane, or nearly so, is made of cast-iron, about two inches square inside, in cross section, with slotted ears at either side of each end for bolting on the gas pipe connections, into which the connecting pipes are screwed. In an elbow of this description, for a 6-inch stroke Pump, the flexible rod consists of six 2-inch turned iron rollers, fitting elbow at top and bottom to prevent buckling. These rollers are connected together by brass straps or links, with *steel shafts passing through* their centres, forming axes for the rollers,



the links being of proper length to permit them and the rollers combined to follow the curve of the elbow as the Pump lever imparts the reciprocating motion.

There is ample room on each side of these rollers and straps for the water to pass up in its ascent to the standard, the effort required in the operation being no more than in ordinary pumping.

We recommend the use of ⅜-inch gas pipe for piston rod in the horizontal pipe connecting the elbows, for the reason that it is lighter than solid rod, and will sustain its weight with less sag between the roller sockets. These roiler sockets are made of brass and iron, and roll back and forth in this pipe with trifling resistance, thus contributing to the easy working of the Pump.

They are of small expense, and should be used every 8 or 10 feet. It goes without saying that they are not needed in the vertical pipe.

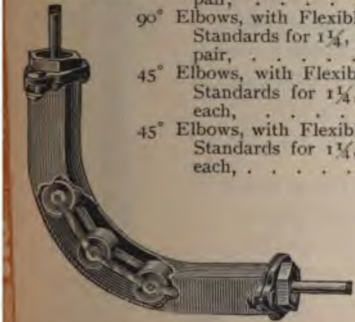
Our long experience has taught us that the cylinder should invariably be submerged in the water, as the Pump is then always primed, and in using these elbows we prefer to have the water wasted just above the elbow nearest the standard, all the pipe below that being filled with water, and a few motions of the lever brings it to the spout, and at the same time keeps the joints of flexible rod well lubricated.

There is, in our opinion, absolutely nothing about this flexible rod that can wear out or cause trouble.

We have secured from the patentee the **exclusive control** of this valuable invention for **the whole United States,** and are prepared to furnish them at prices named below:

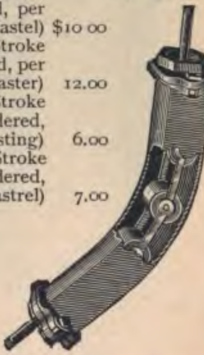
FIG. 838. Sizes, Prices, Etc.

90° ELBOW.



90° Elbows, with Flexible Piston Rod, for 6 inch Stroke Standards for 1¼ or 1½ inch pipe, as ordered, per pair,	(Wastel)	$10 00
90° Elbows, with Flexible Piston Rod, for 10 inch Stroke Standards for 1¼, 1½, or 2 inch pipe, as ordered, per pair,	(Waster)	12.00
45° Elbows, with Flexible Piston Rod, for 6 inch Stroke Standards for 1¼, 1½, or 2 inch pipe, as ordered, each,	(Wasting)	6.00
45° Elbows, with Flexible Piston Rod, for 10 inch Stroke Standards for 1¼, 1½, or 2 inch pipe, as ordered, each,	(Wastrel)	7.00

45° ELBOW.



The two ends of the Flexible Rod can be screwed for either solid rod or gas pipe connections as ordered: for reasons referred to above, we prefer the use of the latter.

PATENT ROLLER COUPLING.

FOR HORIZONTAL OR INCLINED SUCTION PIPE.

FIG. 839.

FIG. 839. Sizes, Prices, Etc.

Patent Roller Coupling, for 1¼ inch pipe,	(Watch)	$0.50
Patent Roller Coupling, for 1½ inch pipe,	(Watchful)	.65
Patent Roller Coupling, for 2 inch pipe,	(Watchgun)	.85

GOULDS "STAR" WELL PUMPS. ANTI-FREEZING.

FIG. 206.

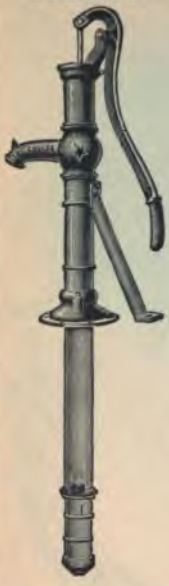
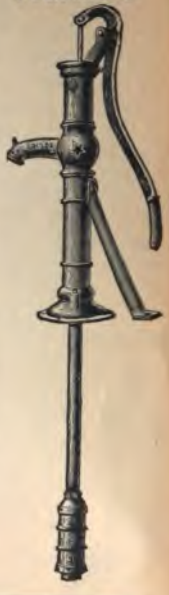


FIG. 207.



WITH CAST OR WROUGHT-IRON CONNECTING PIPE.

Fig. 206 is adapted for out-door cisterns and shallow wells, where water is not to be lifted over 15 or 25 feet. It is composed of a standard, cast-iron connecting pipe and cylinder, having the valves in it. The internal diameter of the standard is a trifle larger than that of the cylinder; hence the plunger can be drawn up through it, repaired and replaced if ever necessary.

Fig. 207 is appropriate for out-door cisterns and shallow wells, and is also anti-freezing by the nature of its construction. By adding to the connecting pipe and piston rod, and so dropping the cylinder further into the well, until the cylinder is within, say, 15 to 20 feet of the surface of the water, this Pump could be used in wells from 30 to 40 feet deep.

Height, base to lever top 33 to 40 inches.

FIG. 206. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Stroke.	Capacity per Stroke.	Cipher.	Price.
2	2¼ in.	1 in.	6 in.	1-10 gal.	Bath	$7.00
3	2½ "	1¼ "	6 "	1-8 "	Beam	7.50
4	2¾ "	1¼ "	6 "	1-7 "	Bean	8.00
5	3 "	1¼ "	6 "	1-6 "	Bear	8.50

FIG. 207. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Stroke.	Capacity per Stroke.	Cipher.	Price.
1	2¼ in.	1 in.	6 in.	1-10 gal.	Bell	$7.00
2	2½ "	1¼ "	6 "	1-8 "	Belt	7.50
3	2¾ "	1¼ "	6 "	1-7 "	Bend	8.00
4	3 "	1¼ "	6 "	1-6 "	Bent	8.50
5	3¼ "	1¼ "	6 "	1-5 "	Best	9.00

GOULDS IMPROVED WELL PUMPS. ANTI-FREEZING.

WITH CAST-IRON CONNECTING PIPE.

FIG. 227.

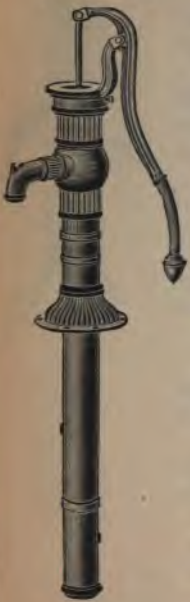


FIG. 225.

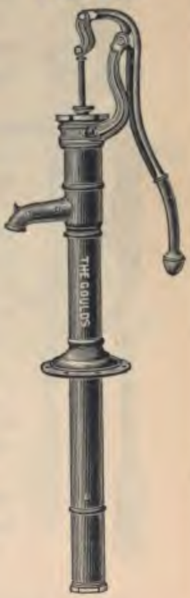


Fig. 227 shows an open-top Well Pump, for wells from 15 to 25 feet deep. It is also rendered anti-freezing by placing the valves out of reach of frost. The piston can also be drawn out through the top.

When desired we can furnish standards and cylinders only, the base and top attachment of cylinder being tapped to connect the two by gas pipe. The cylinder then can be placed as far down into the well as desired.

Fig. 225 is similar in appearance and operation to **Fig. 227,** except it is provided with a tight top and the usual appliances. These Pumps are of large capacity and adapted for watering stock, etc. Can furnish either of these Pumps, with wrought-iron connecting pipe, at same price.

FIG. 227. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Stroke.	Capacity per Stroke.	Cipher.	Price.
5	3¼ in.	1½ in.	6 in.	1-5 gal.	Brow	$12.00
7	3¾ "	1½ "	6 "	3-10 "	Brush	13.00

FIG. 225. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Stroke.	Capacity per Stroke.	Cipher.	Price.
7	*3¾ in.*	*1½ in.*	6 in.	3-10 gal.	Brim	$15.00

GOULDS "NEW STAR" WELL PUMPS. ANTI-FREEZING.

WITH WROUGHT-IRON CONNECTING PIPE. PATENT SAND VALVE.

FIG. 550.

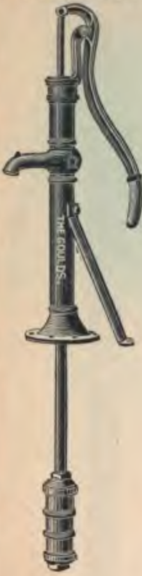
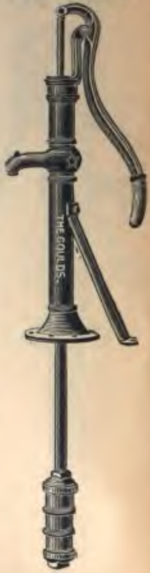


FIG. 551.



This, our latest and best of its kind, is called our "New Star" Well Pump.

The general outline is similar to **Fig. 207,** although the bearer top is of new and improved design.

When built as described it is intended for out-door cisterns and shallow wells—dug, drilled or driven—where water is not more than 25 feet below ground line.

In our opinion, this Pump, as shown by the illustrations, is so superior and desirable in every respect, and so fully supplies the average demand for a Pump of its kind, that we shall aim to have it supplant all other styles of set-length Well Pumps we now manufacture.

Height, base to lever top, 43 inches.

Fig. 551 is somewhat taller than **Fig. 550** and proportionately heavier, and can be used for same purposes.

These Pumps are tapped and receive the wrought-iron pipe near the spout and not at the base.

Height, base to lever top, 45 inches.

FIG. 550. Sizes, Prices, Etc.

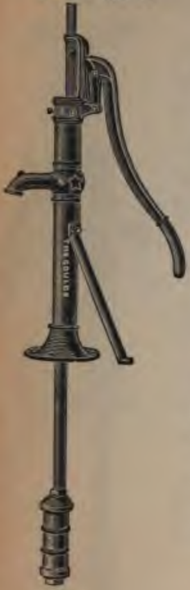
No.	Dia. Cyl.	Suc.	Stroke.	Capacity per Stroke.	Cipher.	Price.
2	2½ in.	1¼ in.	6 in.	1-8 gal.	Varvels	$8.00
3	2¾ "	1¼ "	6 "	1-7 "	Vase	8.25
4	3 "	1¼ "	6 "	1-6 "	Vassal	8.50
5	3¼ "	1¼ "	6 "	1-5 "	Vast	8.75

FIG. 551. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Stroke.	Capacity per Stroke.	Cipher.	Price.
3	2¾ in.	1¼ in.	6 in.	1-7 gal.	Vastly	$8.75
4	3 "	1¼ "	6 "	1-6 "	Vasty	9.00
5	3¼ "	1¼ "	6 "	1-5 "	Vat	9.25

GOULDS "NEW STAR" TIGHT TOP WELL PUMPS.

FIG. 553.



WROUGHT-IRON CONNECTING PIPE.
ANTI-FREEZING.

FIG. 554.

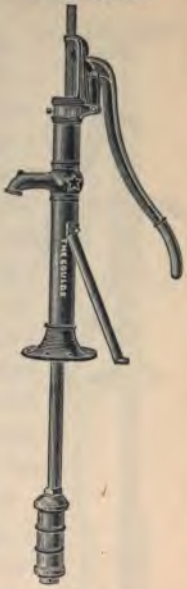


Fig. 553 shows our "New Star" Well Pump, with tight top. This style of Pump is liked because the piston rod is guided above and moves up and down in a straight line, instead of oscillating, and because there is no opening through which anything can be thrown into the well.

The general construction of this Pump standard is more fully described under **Fig. 762,** page 46, while its adaptations are set forth under **Fig. 550,** to which we refer.

Height, base to upper guide, 43 inches.

Fig. 554 represents the larger size of our "New Star" Well Pump.

We feel justly proud of this entire line of Pumps, and shall be much surprised if our friends have anything but good words to say of them. We have nothing better to show, at least, and we think an experience of about 35 years ought to give weight to our assurances. These Pumps are tapped and receive the wrought-iron pipe near the spout and not at the base.

Height, base to upper guide, 45 inches.

FIG. 553. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Stroke.	Capacity per Stroke.	Cipher.	Price.
2	2½ in.	1¼ in.	6 in.	1-8 gal.	Veck	$9.00
3	2¾ "	1¼ "	6 "	1-7 "	Vection	9.25
4	3 "	1¼ "	6 "	1-6 "	Vector	9.50
5	3¼ "	1¼ "	6 "	1-5 "	Vecture	9.75

FIG. 554. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Stroke.	Capacity per Stroke.	Cipher.	Price.
3	2¾ in.	1¼ in.	6 in.	1-7 gal.	Veda	$ 9.75
4	3 "	1¼ "	6 "	1-6 "	Vedet	10.00
5	3¼ "	1¼ "	6 "	1-5 "	Veer	10.25

GOULDS "NEW STAR" WELL PUMPS. ANTI-FREEZING.

WITH WROUGHT-IRON CONNECTING PIPE. PATENT SAND VALVE.

FIG. 847.

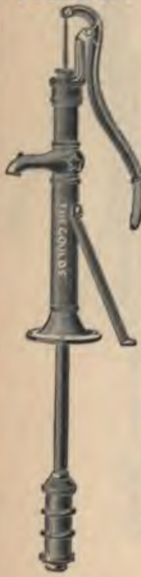


FIG. 848.

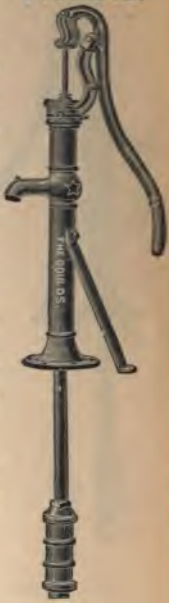


Fig. 847 represents our larger size "New Star" Well Pump, standard with bowl or funnel-shape cap, similar to our old **Fig. 517.** This style of Pump is a favorite with well drivers, for in opening and cleaning out new wells it is oftentimes necessary to prime pump, and this top cap is especially well adapted for that purpose.

Fig. 848 is the same standard with our admirable tight top cap, polished rod and links above, similar to our old **Fig. 234,** which we intend it shall supplant. We think this Pump combines the best features of this class, for this tight top prevents all stones, sticks or ice finding their way into the Pump and destroying its usefulness.

Both of these Pumps are tapped to receive wrought-iron pipe near the spout, and not at the base.

Height, base to lever top, 45 inches.

FIG. 847. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Stroke.	Capacity per Stroke.	Cipher.	Price.
2	2½ in.	1¼ in.	6 in.	1-8 gal.	Waltron	$8.50
3	2¾ "	1¼ "	6 "	1-7 "	Waltz	8.75
4	3 "	1¼ "	6 "	1-6 "	Waltzer	9.00
5	3¼ "	1¼ "	6 "	1-5 "	Waltzing	9.25

FIG. 848. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Stroke.	Capacity per Stroke.	Cipher.	Price.
2	2½ in.	1¼ in.	6 in.	1-8 gal.	Waly	$8.75
3	2¾ "	1¼ "	6 "	1-7 "	Wamble	9.00
4	3 "	1¼ "	6 "	1-6 "	Wammel	9.25
5	3¼ "	1¼ "	6 "	1-5 "	Wampee	9.50

GOULDS "NEW STAR" WELL FORCE PUMPS.

WITH WROUGHT-IRON CONNECTING PIPE. ANTI-FREEZING.

FIG. 852.

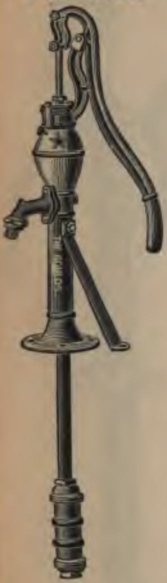


Fig. 852 represents a new Well Force Pump we have designed to take the place of our old Tube Well Force Pump, **Fig. 242.**

The Standard is our tallest and heaviest Standard of this class, and think the Trade will appreciate the advantages this Pump offers in having our admirable revolving tight-top and outlet back of spout for attaching pipe, as well as being tapped for and receiving connecting pipe in the stock near the spout.

Fig. 882 is the same in all respects as **Fig. 852,** with the addition of a cock on the spout.

When pipe is connected to side opening behind the spout, there must be some means for closing the spout opening, and a cock does this. The nose of cock is screwed for 1¼ inch gas-pipe thread, and will take ¾ inch hose coupling.

Height, base to lever top, 50 inches.

FIG. 882.

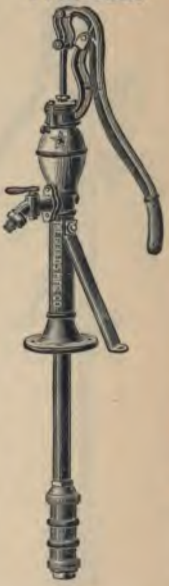


FIG. 852. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Stroke.	Capacity per Stroke.	Cipher.	Price.
3	2¾ in.	1¼ in.	6 in.	1-7 gal.	Ware	$13.00
4	3 "	1¼ "	6 "	1-6 "	Wareful	13.00
5	3¼ "	1¼ "	6 "	1-5 "	Wareless	13.50
6	3½ "	1½ "	6 "	1-4 "	Warely	14.50

FIG. 882. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Stroke.	Capacity per Stroke.	Cipher.	Price.
3	2¾ in.	1¼ in.	6 in.	1-7 gal.	Wares	$15.50
4	3 "	1¼ "	6 "	1-6 "	Warfare	15.50
5	3¼ "	1¼ "	6 "	1-5 "	Warhable	16.00
6	3½ "	1¼ "	6 "	1-4 "	Warhorse	17.00

GOULDS NEW WELL FORCE PUMPS. ANTI-FREEZING.

WITH CAST OR WROUGHT-IRON CONNECTING PIPE. PATENT SAND VALVE.

FIG. 854.

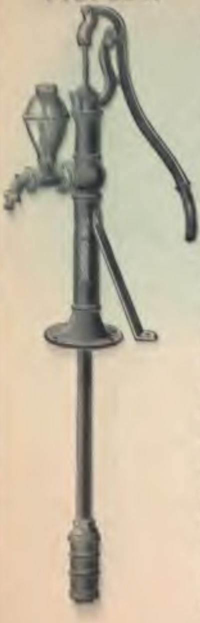


Fig. 854 represents an entirely new Pump we have designed to replace our **Fig. 699.**

The cut will explain its construction, and at the very low price it is offered it represents good value for a Well Force Pump of this kind. We aim at simplicity of parts, and these adequately strong for purpose they are intended.

Height, base to lever top, 44½ inches.

Fig. 240 shows our heavy Well Force Pump with cast-iron pipe connecting standard and cylinder. When constructed in this manner these Pumps are adapted for wells of depths not exceeding 25 feet. The piston can be withdrawn from cylinder up through the standard when desired. Can also furnish these Pumps with wrought-iron connecting pipe at same list price if desired, and by changing cylinder they can be adapted for wells of any depth.

Height, base to lever top, 47 inches.

FIG. 240.

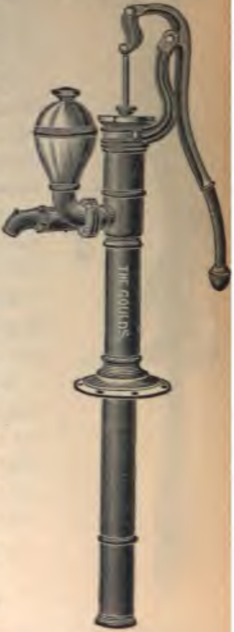


FIG. 854. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Stroke.	Capacity per Stroke.	Cipher.	Price.
3	2¾ in.	1¼ in.	6 in.	1-7 gal.	Watching	$13.50
4	3 "	1¼ "	6 "	1-6 "	Watchman	14.00
5	3¼ "	1¼ "	6 "	1-5 "	Water	14.50

FIG. 240. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Stroke.	Capacity per Stroke.	Cipher.	Price.
4	3 in.	1½ in.	6 in.	1-6 gal.	Card	$17.00
6	4 "	2 "	6 "	1-3 "	Care	19.00

GOULDS "NEW STAR" WELL FORCE PUMPS.

WROUGHT-IRON CONNECTING PIPE, ANTI-FREEZING.

FIG. 424.

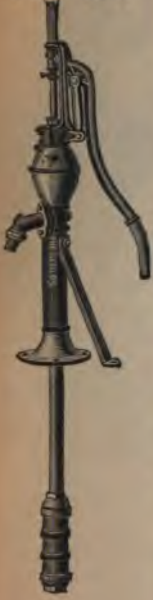


FIG. 426.

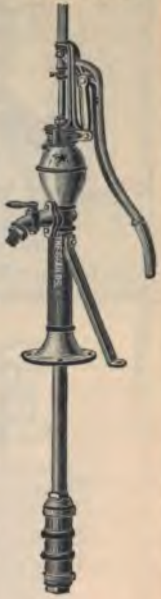


Fig. 424 represents our No. 1 "New Star" Force Pump, standard arranged with connecting pipe and cylinder. This is one of the best designed and built Force Pumps we have ever made, and needs but to be seen to be appreciated. They are provided with an outlet back of the spout for attaching pipe, and the spout has a hose tube for attaching ¾ inch hose.

Height, base to upper guide, 47 inches.

Fig. 426 is the same in all respects as **Fig. 424,** described above, with the addition of a cock on the spout.

When pipe is connected to side opening behind the spout, there must be some means for closing the spout opening, and a cock does this. The nose of cock is screwed for 1¼ inch gas pipe thread, and will take ¾ inch hose coupling.

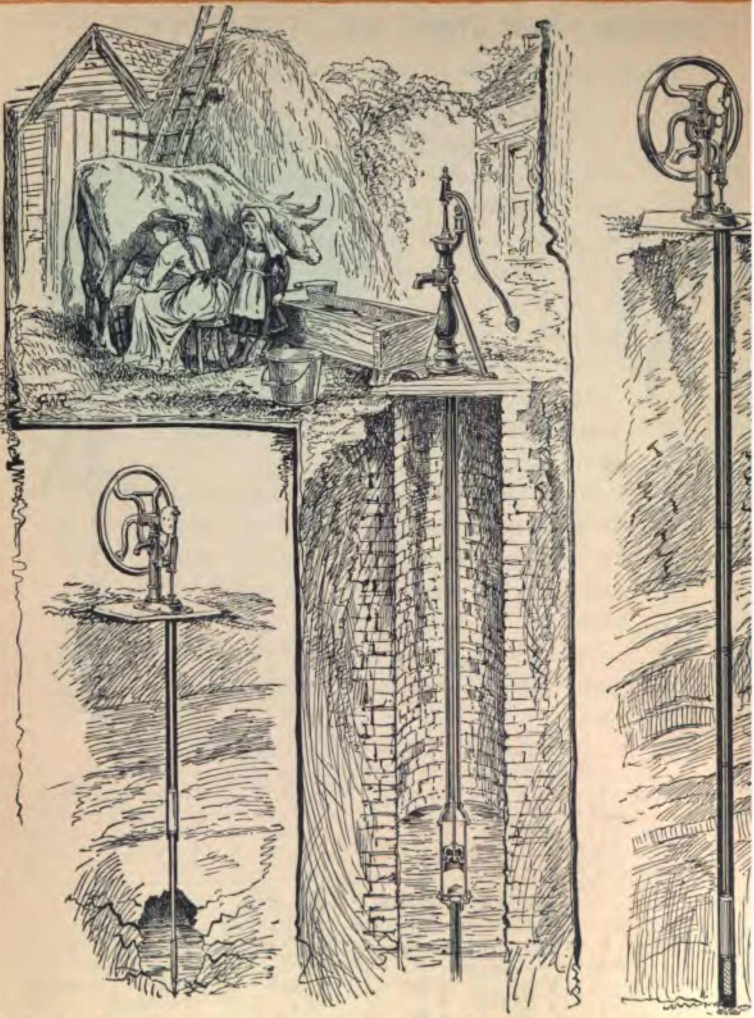
These Pumps are tapped for and receive the wrought-iron pipe near the spout and not at the base.

FIG. 424. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Stroke.	Capacity per Stroke.	Cipher.	Price.
3	2¾ in.	1¼ in.	6 in.	1-7 gal.	Vell	$13.25
4	3 "	1¼ "	6 "	1-6 "	Vellet	13.50
5	3¼ "	1¼ "	6 "	1-5 "	Vellum	14.00

FIG. 426. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Stroke.	Capacity per Stroke.	Cipher.	Price.
3	2¾ in.	1¼ in.	6 in.	1-7 gal.	Vogle	$15.75
4	3 "	1¼ "	6 "	1-6 "	Voglite	16.00
5	3¼ "	1¼ "	6 "	1-5 "	Vogue	16.50



Goulds Deep Well Standards and Cylinders. For description see opposite

GOULDS DEEP WELL STANDARDS AND CYLINDERS.

FOR OPEN, DRIVEN OR DRILLED WELLS.

On opposite page we illustrate a few of our Deep Well Pumps, standard and cylinders, in operation. To the left is our **Fig. 547** pumping apparatus (see page 87) over a driven well.

In the centre is our **Fig. 236** standard (see page 37) located over an open well which is yet the most common form.

To the right is **Fig. 595** pumping apparatus (see page 88) over a very deep Artesian well. This well is bored or drilled the entire depth, lined with casing, and inside of this is located pipe and cylinder.

These represent, of course, but a few of our styles of standards and cylinders, and will treat of these in a general way, referring to our several pages of this class of goods for details of construction, etc.

The power exerted by an ordinary man in working a pump handle continuously must not be estimated above 25 pounds; therefore, if the power required exceeds this amount, provision must be made for more than one man to work at once or the power increased by gears.

It is also easier to raise a given quantity of water with a double-barrel Pump than with a single-barrel Pump (supposing the capacity of the two barrels together the same as that of the single barrel). The reason of this is that in the single barrel the whole lift comes on one-half of the turn of the handle, while with the double barrel it is distributed over two halves of the turn and you lift only one-half at a time.

The leverage of an ordinary cistern or well pump-handle is about 6 to 1.

The leverage on rotary motion pumping apparatus and Well Frames is in the proportion of the radius or throw of the handle to the throw of the crank (that is, half the stroke of the Pump). The former is usually about 15 inches. Therefore, with a Pump of 6 inch stroke the leverage is only as 2½ to 1; with a Pump of 5 inch stroke the leverage is as 3 to 1, etc. This proportion is somewhat increased in deep well frames by the lever at the bottom of the frame on to which the Pump rod is attached.

It is evident, therefore, that, contrary to the general opinion, a man exercises mc power with an ordinary pump-handle than with a crank and handle, although the lat motion *may be pleasanter to work.* A heavy fly-wheel equalizes the work by sto up the power when the work is light, and giving out again when it is heavy, but it cannot possibly increase the power.

If a pumping apparatus or well frame is provided with wheel and pinion of the proportion of 2 to 1, one-half the power is required to raise water a given distance, but only one-half the water is raised for each turn of the handle; with wheel and pinion as 3 to 1, one-third of the power is required, and but one-third of the quantity raised. Thus, in the same proportion as you gain in power, you lose in the quantity raised in a given time.

Cylinders may be located within suction distance of water, although the preferable way is to submerge them in the water, as in this way they require no suction pipe and the valves are always primed.

The depth of the well should determine the size of cylinder, and from the following table it will be noted that the deeper the well the smaller the cylinder:

45 feet or less, any size required.
60 feet, 3 inch cylinder or under.
100 feet, 2½ inch cylinder or under.

This rule, of course, applies to Pumps worked by hand only, as in larger Pumps worked by power any size may be used.

Parties wishing our advice on the subject of Standards and Cylinders should put us in possession of following information:

Depth and diameter of well or stream.
Depth of water in well or stream.
Height to which water is to be raised. That is, from surface of water to point of delivery.
Quantity required in a given time.
Power available or preferred.

For further information we refer to

Pages 5 and 6—Remarks on Pumps.
Pages 31 to 39—Deep and Shallow Well standards for manual power.
Pages 46 to 55—Deep and Shallow Well standards for manual or wind power.
Pages 86 to 113—Heavy Pumping Apparatus, Frames, and Cylinders for manual, animal, or other power.
Pages 201 to 205—Pump Cylinders.
Also to tables of capacity, power, etc., among last pages.

GOULDS "STAR" WELL PUMP STANDARD.

WITH REVOLVING TOP. BOLT BASE.

FIG. 845.

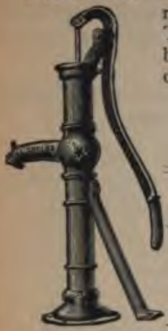


Fig. 845 represents our "Star" Well Pump Standard, with revolving top and bolt base, as we build it in five sizes, given below. The wrought-iron connecting pipe screws into the base, which may be separated from stock by taking out base bolts, as will be found convenient in making rod and pipe connections over wells.

Always fitted for sizes pipe given in our table.

FIG. 845. Sizes, Prices, Etc.

No.	Pipe.	Stroke.	Height.	Cipher.	Price.
1	1 in.	6 in.	33½ in.	Walker	$3.75
2	1¼ "	6 "	35½ "	Walking	4.25
3	1¼ "	6 "	38½ "	Wall	4.50
4	1¼ "	6 "	40½ "	Waller	5.00
5	1¼ "	6 "	40½ "	Wallet	5.25

CYLINDERS.

For cylinders to go with this standard, see pages 201 to 205.

GOULDS "NEW STAR" WELL PUMP STANDARD.

WITH REVOLVING TOP. SOLID BASE.

FIG. 846.

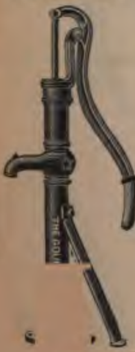


Fig. 846 represents our "New Star" Well Pump Standard, with revolving top and solid base, which we can furnish in three sizes, adapted to wells of any depth.

The wrought-iron connecting pipe screws into standard near the spout, and we always tap as given below, although we can tap for 1½ or 2 inch pipe, if so ordered.

FIG. 846. Sizes, Prices, Etc.

No.	Pipe.	Stroke.	Height.	Cipher.	Price.
3	1¼ in.	6 in.	43 in.	Walling	$5.50
4	1¼ "	6 "	45 "	Wallnot	6.00
5	1¼ "	6 "	47 "	Wallop	6.50

CYLINDERS.

For cylinders to go with this standard, see pages 201 to 205.

GOULDS "NEW STAR" WELL PUMP STANDARD.

WITH REVOLVING OPEN TOP. SOLID BASE.

FIG. 849.

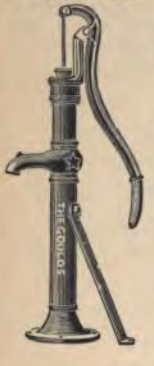


Fig. 849 represents our "New Star" Well Pump Standard, with revolving bowl top and solid base. This style standard is especially adapted for driven wells, as the funnel-shape top admits of readily priming Pump, if ever necessary, in new wells.

Always tapped near the spout for sizes of wrought-iron pipe given below, although we can fit for 1½ or 2 inch, if so ordered.

FIG. 849. Sizes, Prices, Etc.

No.	Pipe.	Stroke.	Height.	Cipher.	Price.
3	1¼ in.	6 in.	43 in.	Wallow	$5.50
4	1¼ "	6 "	45 "	Wallpie	6.00
5	1¼ "	6 "	47 "	Wallrock	6.50

CYLINDERS.

For cylinders to go with this standard, see pages 201 to 205.

GOULDS "NEW STAR" WELL PUMP STANDARD.

WITH REVOLVING TIGHT TOP. SOLID BASE.

FIG. 850.

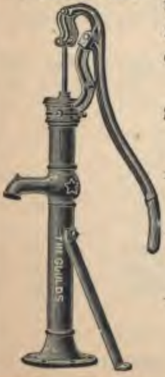


Fig. 850 represents our "New Star" Well Pump Standard, with revolving tight top and solid base. This Pump is especially desirable for public places, for the tight top precludes the possibility of stones or sticks being thrown into pump.

Always tapped near the spout for sizes of wrought-iron pipe given below, although we can fit for 1½ or 2 inch, if so ordered.

FIG. 850. Sizes, Prices, Etc.

No.	Pipe.	Stroke.	Height.	Cipher.	Price.
3	1¼ in.	6 in.	43 in.	Walnut	$5.75
4	1¼ "	6 "	45 "	Walrus	6.25
5	1¼ "	6 "	47 "	Walt	6.75

CYLINDERS.

For cylinders to go with this standard, see pages 201 to 205.

GOULDS "STAR" WELL SECTIONAL PUMP STANDARD.

WITH REVOLVING TOP. SOLID BASE.

FIG. 859.

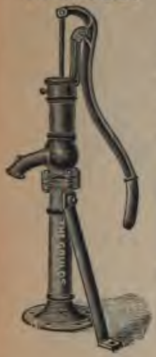


Fig. 859 represents our well-known sectional standard, which is a great favorite with parties putting up Pumps, as it can be fitted for any size pipe by a change of flange, into which pipe is screwed. These flanges are interchangeable and can be screwed for 1½, 2, or 2½ inch pipe, although we always fit as below unless otherwise ordered.

FIG. 859. Size, Price, Etc.

	Pipe.	Stroke.	Height.	Cipher.	Price.
Standard complete, . .	1¼ in.	6 in.	44½ in.	Walter	$9.50

CYLINDERS.

For cylinders to go with this standard, see pages 201 to 205.

GOULDS NEW WELL PUMP STANDARD.

FOR DEEP OR SHALLOW WELLS.

FIG. 486.

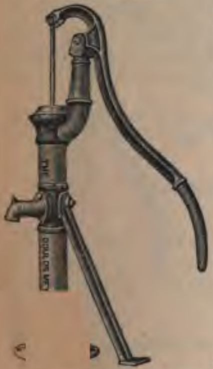


Fig. 486 represents our New Well Pump Standard, for deep or shallow wells. The very strong bearer top and long and heavy lever will adapt this standard for wells of more than ordinary depth, and it is sometimes used over very deep wells. The standard is tapped for wrought-iron pipe near the spout.

We can fit for 1½ or 2 inch pipe, if so ordered, but always fit for 1¼ inch unless otherwise directed.

FIG. 486. Size, Price, Etc.

	Pipe.	Stroke.	Height.	Cipher.	Price.
Standard complete,	1¼ in.	8 in.	43½ in.	Harm	$6.00

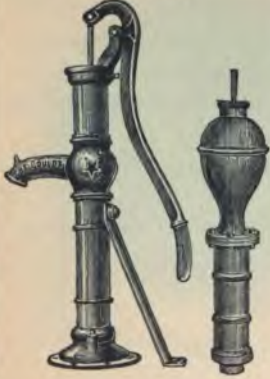
CYLINDERS.

For cylinders to go with this standard, see pages 201 205. *Our* **Figs. 611** and **612** are usually employed.

GOULDS PUMP STANDARD AND CYLINDER.

FOR DEEP OR SHALLOW WELLS.

FIG. 559.



Under style **Fig. 559** we arrange our **Fig. 845** lift standard with our **Fig. 559½** deep well cylinder, surmounted with an air chamber. The effect of this air chamber above the cylinder, is to relieve it, and the entire connecting pipe and standard, of the usual jerk and strain common in pumping water from deep wells, and at the same time supplying a more steady stream at the discharge. When desired, we can fit up this standard and cylinder with the necessary connecting pipe and rods for wells of any depth.

Stroke, 6 inches; height standard, 40 in.

FIG. 559. Sizes, Prices, Etc.

No.	Dia. Cyl.	Pipe.	Gal. per Stroke.	Length of Cyl.	Cipher.	Price.
4	3 in.	1¼ in.	1-6	12 in.	Lava	$12.00
8	4 "	1½ "	1-5	12 "	Law	18.00

GOULDS "NORTHERN STAR" FORCE PUMP STANDARD.

WITH REVOLVING TOP. SOLID BASE.

FIG. 855.

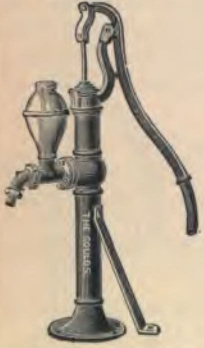


Fig. 855 represents our "Northern Star" Force Pump Standard, which we now offer to replace our old standard used in **Fig. 699,** and believe it will find many friends. It is simple in construction, strong and compact, and offers good value for a Pump of this class, at the low price at which we are able to sell it.

It is tapped near the spout for sizes of wrought-iron pipe given in our table below, although could be changed if desired.

FIG. 855. Size, Price, Etc.

	Pipe.	Stroke.	Height.	Cipher.	Price.
Standard complete,	1¼ in.	6 in.	44½ in.	Washer	$11.00

CYLINDERS.

For cylinders to go with above standards, see pages 201 *to* 205.

GOULDS "NEW STAR" WELL FORCE PUMP STANDARD.

WITH REVOLVING TOP. SOLID BASE.

FIG. 853.

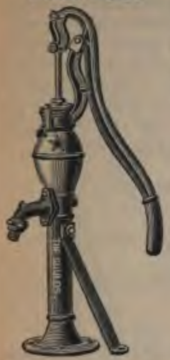


Fig. 853 represents our admirable "New Star" Well Force Pump, standard arranged with common top in place of Wind Mill top, under which form it has been so popular.

All these standards are tapped for pipe near the spout. Each one has an outlet back of the spout for attaching pipe, and the spout is provided with ¾ inch hose tube to screw on, and not with a clap-trap of a clamp.

Always tapped as below unless otherwise ordered.

FIG. 853. Sizes, Prices, Etc.

No.	Pipe.	Stroke.	Height.	Cipher.	Price.
1	1¼ in.	6 in.	47 in.	Wash	$10,00
2	1¼ "	6 "	50 "	Washable	11.00

CYLINDERS.

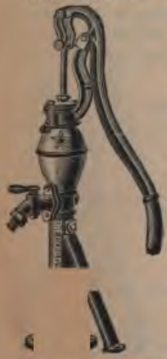
For cylinders to use with above standards, see pages 201 to 205.

GOULDS "NEW STAR" WELL FORCE PUMP STANDARD.

WITH REVOLVING TOP AND COCK SPOUT.

This is the same Force Pump standard in all respects as our **Fig. 853,** more fully described above, except that it has a cock spout. When pipe is connected to the side opening behind the spout, there must be some means for closing the spout opening, and a cock does this. In this manner the water may be distributed in two or more directions. Thus one Pump may be made to supply water at the house or any part of the premises as well. The nose of cock is screwed for 1¼ inch gas pipe thread, and will take ¾ inch hose coupling.

FIG. 883.



The standards are always tapped for pipe near the spout, as below, unless otherwise ordered.

FIG. 883. Sizes, Prices, Etc.

No.	Pipe.	Stroke.	Height.	Cipher.	Price.
1	1¼ in.	6 in.	47 in.	Washball	$12.50
2	1¼ "	6 "	50 in.	Washbowl	13.50

CYLINDERS.

For cylinders to use with above standards, see pages 201 to 205

GOULDS "STAR" WELL FORCE PUMP STANDARD.

WITH REVOLVING TOP. SOLID BASE.

FIG. 857.

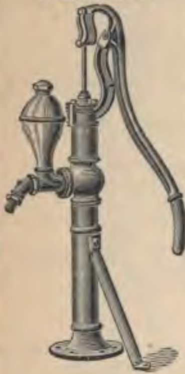


Fig. 857 is another of our favorite Wind Mill Pump standards, arranged with our new force Pump top, and is preferred by many at an increased cost to standards having the air-chamber in the stock.

The gas pipe is connected in the body, close under the spout, and either 1, 1¼, 1, 1½ or 2 inch can be used if so ordered, but always fitted as below unless otherwise directed. We *cannot* fit this standard with 2½ inch pipe. When wanted with suction for this size of pipe, see **Fig. 858,** given below. On the extremity of spout we place a coupling and tube for ¾ inch hose.

FIG. 857. Size, Price, Etc.

	Pipe.	Stroke.	Height.	Cipher.	Price.
Standard complete,	1¼ in.	6 in.	48½ in.	Washing	$12.00

CYLINDERS.

For cylinders to use with above standards, see pages 201 to 205.

GOULDS "STAR" SECTIONAL FORCE PUMP STANDARD.

WITH REVOLVING TOP. SOLID BASE.

FIG. 858.

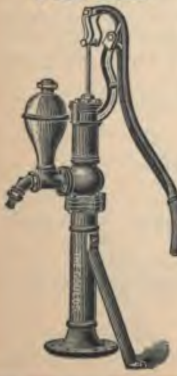


Fig. 858 is similar in appearance and construction to **Fig. 857,** given above, except the standard is built in two sections, with intermediate flange between, into which the suction pipe is screwed. This flange is interchangeable and can be screwed for any size of pipe up to and including 2½ inch, but always shipped as below unless otherwise ordered. The coupling and tube at the spout is fitted for ¾ inch hose.

FIG. 858. Size, Price, Etc.

	Pipe.	Stroke.	Height.	Cipher.	Price.
Standard complete,	1¼ in.	6 in.	48½ in.	Washoff	$12.50

We add $2.50 to list when cocks are sent.

EXTRA FLANGES.

1¼ inch, each, 50 cents; 1½, 2, and 2½ inch, each, 60 cents.

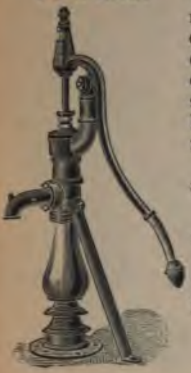
CYLINDERS.

For cylinders to use with this standard, see pages 201 to 205.

GOULDS SECTIONAL PUMP STANDARD.

FOR WELLS UP TO 100 FEET DEEP.

FIG. 236.



The cut shows our **Fig. 236** Deep Well Pump Standard. We can recommend it for wells up to 100 feet deep, though it is not so heavy as **Fig. 592,** page 38. When a few dollars extra expense is not considered, the most permanent thing being desired, and particularly in public wells, and on estates where employees use the Pump, we would urge the purchase of such standards as these, and can remark that our **Fig. 236** has been before the trade for at least 18 or 20 years, and has always been regarded as the best of the kind ever made.

Any size pipe from 1¼ to 2 inch can be used with this standard, but always fitted for 1¼ inch unless otherwise ordered.

FIG. 236. Size, Price, Etc.

	Pipe.	Stroke.	Height.	Cipher.	Price.
Standard complete,	1¼ in.	7 in.	51 in.	Cane	$10.00

CYLINDERS.

For cylinders to go with this standard, see pages 201 to 205. Our **Figs. 613** and **614**, are most commonly employed.

GOULDS SECTIONAL FORCE PUMP STANDARD.

FOR WELLS UP TO 100 FEET DEEP.

FIG. 237.

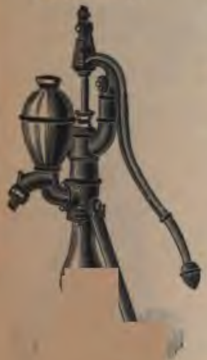


Fig. 237 represents our Deep Well Force Pump Standard, being same as **Fig. 236,** shown above, with the addition of an air chamber on the spout. There is a 1 inch half-hose coupling and tube for attaching hose on the spout. Loosen nut on top of air chamber when used for ordinary pumping and tighten it when used for forcing purposes.

Always fitted for 1¼ inch pipe unless ordered to the contrary, but we can fit them for 1½ or 2 inch pipe when desired.

FIG. 237. Size, Price, Etc.

	Pipe.	Stroke.	Height.	Cipher.	Price.
Standard complete,	1¼ in.	7 in.	51 in.	Cannon	$13.00

CYLINDERS.

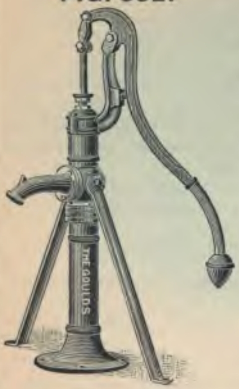
For cylinders to go with this standard, see pages 201 to 205.

Our Deep Well Cylinders, **Figs. 613** and **614**, are most commonly employed.

GOULDS HEAVY SECTIONAL PUMP STANDARD.

FOR WELLS FROM 100 TO 300 FEET DEEP.

FIG. 592.



The cut accurately represents our New Deep Well Pump Standard. The manner of construction in two sections, with flange between, is plainly visible, and will be esteemed a very great convenience by those who have to set up these Pumps. It is very strong and heavy and will answer to use on wells from 100 to 300 feet deep.

Any size from 1¼ inch to 2½ inch pipe can be used with this standard, but always fitted as below unless ordered otherwise.

FIG. 592. Size, Price, Etc.

	Pipe.	Stroke.	Height.	Cipher.	Price.
Stand'd complete,	1½ in.	7 in.	51 in.	Mill	$16.00

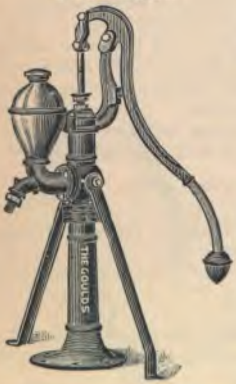
CYLINDERS.

For cylinders to go with above, see pages 201 to 205. Our **Figs. 613** or **614** are the most commonly employed.

GOULDS HEAVY SECTIONAL FORCE PUMP STANDARD.

FOR WELLS FROM 100 TO 300 FEET DEEP.

FIG. 593.



The cut represents our New Deep Well Force Pump Standard. Our description of **Fig. 592** applies to this Pump as well. Always fitted for 1½ inch pipe unless otherwise ordered, but we can fit them for pipe up to 2½ inches.

Spout is cut for 1½ inch pipe, and has 1 inch hose tube.

FIG. 593. Size, Price, Etc.

No.	Pipe.	Stroke.	Height.	Cipher.	Price.
1	1½ in.	7 in.	51 in.	Milt	$20.00
2	Same as spout.	above with c	ock on the	Milton	22.50

CYLINDERS.

For cylinders for above, see pages 201 to 205.

Our **Figs. 613** or **614** are the most commonly employed.

GOULDS SECTIONAL FORCE PUMP STANDARD.

FOR WELLS UP TO 100 FEET DEEP.

FIG. 887.

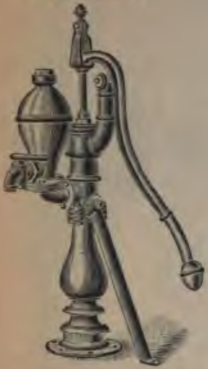


Fig. 887 represents our **Fig. 237**, Deep Well Force Pump Standard, previously described, arranged with cock spout in air chamber, as is many times desirable. A 1 inch hose coupling can be screwed on end of bibb for attaching hose.

Always fitted for 1¼ inch pipe unless ordered to the contrary, but we can fit them for 1½ or 2 inch pipe when so desired.

FIG. 887. Size, Price, Etc.

	Pipe.	Stroke.	Height.	Cipher.	Price.
Standard complete,	1¼ in.	7 in.	51 in.	Cape	$15.50

CYLINDERS.

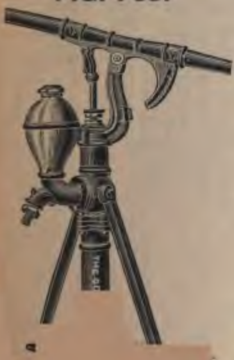
For cylinders to go with this standard, see pages 201 to 205.

Our Deep Well Cylinders, **Figs. 613** and **614**, are most commonly employed.

GOULDS HEAVY SECTIONAL FORCE PUMP STANDARD.

FOR WELLS 100 TO 300 FEET DEEP.

FIG. 763.



The cut represents our Extra Heavy Deep Well Force Pump Standard, arranged with brake top, which one or two men can work. Spout is cut for 1½ inch pipe, and has 1 inch hose tube.

Always fitted for 1½ inch pipe unless otherwise ordered, but we can fit them for pipe up to 2½ inches.

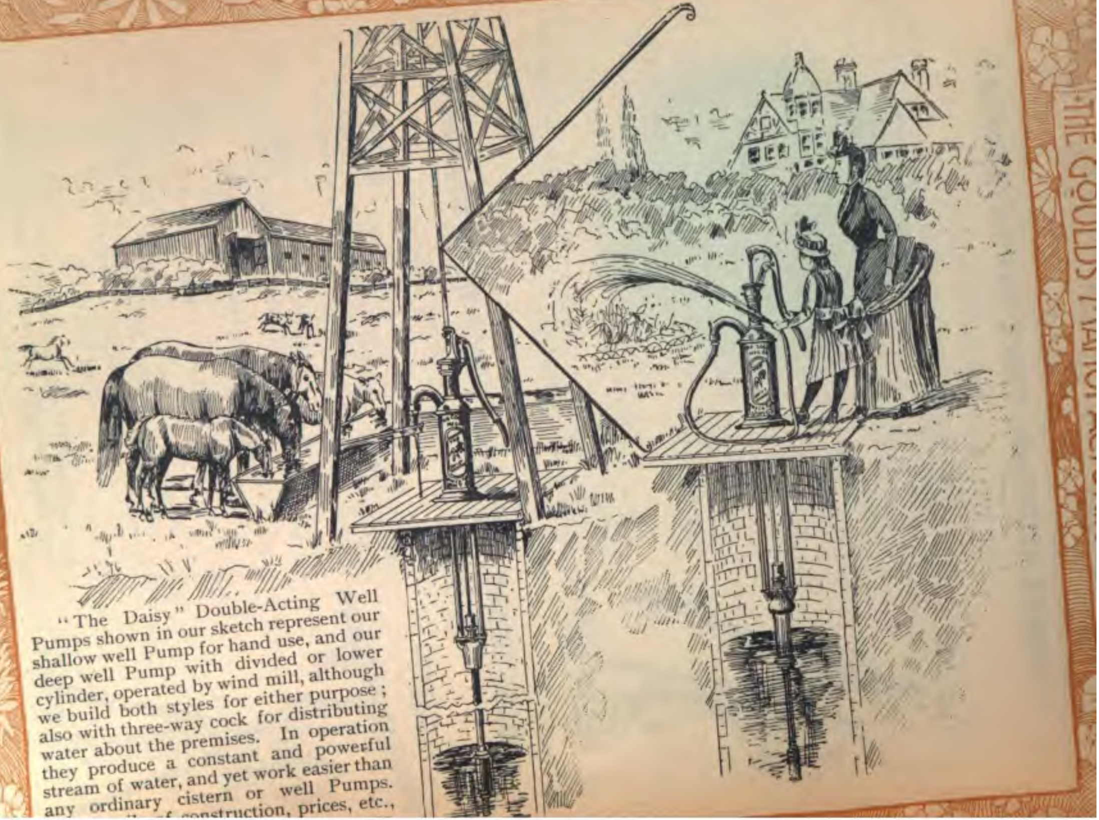
FIG. 763. Size, Price, Etc.

No.	Pipe.	Stroke.	Height.	Cipher.	Price.
1	1½ in.	7 in.	51 in.	Waterage	$21.00
2	Same as above with cock in the spout.			Waterbug	23.50

CYLINDERS.

For cylinders for above, see pages 201 to 205.

Our **Figs. 613** or **614** are the most commonly employed.

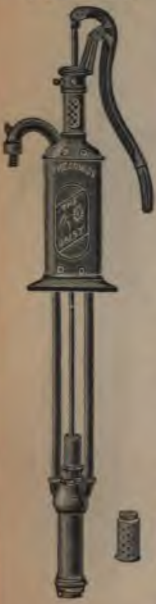


"The Daisy" Double-Acting Well Pumps shown in our sketch represent our shallow well Pump for hand use, and our deep well Pump with divided or lower cylinder, operated by wind mill, although we build both styles for either purpose; also with three-way cock for distributing water about the premises. In operation they produce a constant and powerful stream of water, and yet work easier than any ordinary cistern or well Pumps. construction, prices, etc.,

GOULDS "DAISY" DOUBLE-ACTING FORCE PUMPS.

FOR SHALLOW WELLS.

FIG. 831.



Patented December 6, 1887.

Fig. 831 shows our New Double-Acting Force Pump with revolving common top for shallow wells. Our construction differs from any of this class of popular pumps hitherto put in the market, and has points of superiority that are worth considering, and which will doubtless make it the favorite when seen and used.

1st.—The top is not fixed and rigid, but revolves to any point, like that of all others of this kind.

2d.—There is only one cylinder and plunger. We do not have to resort to all sorts of expedients to keep the upper cylinder packed, such as expanding rubber plungers, etc., to take up the wear.

3d.—There being only one plunger, the friction is reduced to a minimum, and there is less liability to get out of repair.

4th.—The water passages are very large and perfectly direct, without a single bend or curve.

As shown, this pump can be used in wells up to 30 feet deep with perfect satisfaction.

Fig. 832 is the same in all respects as **Fig. 831,** except it has our new Wind Mill Revolving Top with a very deep cap, which prevents all swaying, and has become so popular as to entirely supersede the old style.

A strainer and hose connection go with each pump, and are included in our prices given below:

FIG. 832.

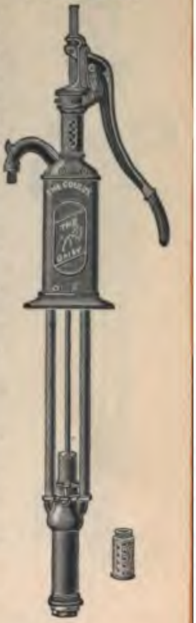


FIG. 831. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Stroke.	For Wells.	Set Length.	Cipher.	Price.
4	3 in.	1¼ in.	6 in.	26 ft.	5½ ft.	Volt	$14.00
6	3½ "	1½ "	6 "	26 "	5½ "	Voltaic	16.00

FIG. 832. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Stroke.	For Wells.	Set Length.	Cipher.	Price.
4	3 in.	1¼ in.	6 in.	26 ft.	5½ ft.	Voltaite	$15.00
6	3½ "	1½ "	6 "	26 "	5½ "	Voluble	17.00

When supplied with brass-lined Cylinders we add $1.50 to list of 3-inch Pumps *& $1.75 to list of 3½ inch Pumps.*

GOULDS "DAISY" DOUBLE-ACTING FORCE PUMPS.

STANDARD AND SET LENGTH, WITH REVOLVING TOP, DIVIDED CYLINDER, WHEN USED IN DEEP WELLS.

FIG. 833.

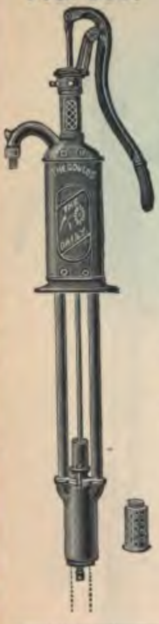
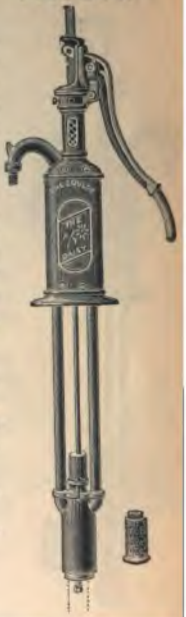


FIG. 834.



Patented December 6, 1887.

Fig. 833 shows "The Daisy" as we supply it when wanted for Deep Wells. The upper cylinder is suspended about five feet below ground, and any of our numerous styles of cylinders can be used at the bottom of well for the lower one. These upper and lower cylinders must, however, sustain a proper relation to each other, otherwise the smoothness of the flow of water will be destroyed. At present we construct **Fig. 833** with three different sizes of upper cylinders or plungers, and give the proper size lower cylinder to go below, with each. By an undeviating compliance with our directions in this regard a nice and easy working Pump will always be had. Strainer goes with each, as shown in cut.

Fig. 834 is the same in all respects as **Fig. 833,** described above, except it is provided with our new Wind Mill Revolving Top, as used upon our most popular Wind Mill Standards.

If Cylinders are to be used in the tube wells, state inside diameter of casing.

Wind Mill Slides are not furnished unless especially ordered. Stroke, 6 inches.

FIG. 833. Sizes, Prices, Etc.

No.	Upper Cyl., Outside Dia.	Lower Cyl. to be used, Inside Dia.	Suc.	Adapted to Wells of depth of	Set Length.	Cipher.	Price.
2	1¾ in.	2½ in.	1¼ in.	30 to 100 ft.	5¼ ft.	Voracity	$12.50
4	2 1-16 "	3 "	1¼ "	30 to 70 "	5¼ "	Vortex	12.50
6	2⅜ "	3½ "	1½ "	30 to 50 "	5¼ "	Vortical	12.50

FIG. 834. Sizes, Prices, Etc.

No.	Upper Cyl., Outside Dia.	Lower Cyl. to be used, Inside Dia.	Suc.	Adapted to Wells of depth of	Set Length.	Cipher.	Price.
2	1¾ in.	2½ in.	1¼ in.	30 to 100 ft.	5¼ ft.	Votaress	$13.50
4	2 1-16 "	3 "	1¼ "	30 to 70 "	5¼ "	Votarist	13.50
6	2⅜ "	3½ "	1½ "	30 to 50 "	5¼ "	Votary	13 50

See pages 201 to 205 for Cylinders to be used with above.

GOULDS "DAISY" DOUBLE-ACTING FORCE PUMPS.

WITH THREE-WAY COCK.

FIG. 864.

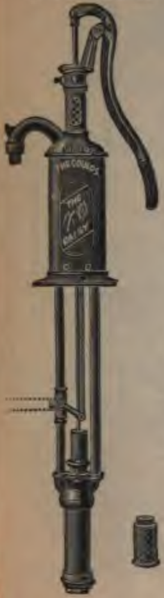
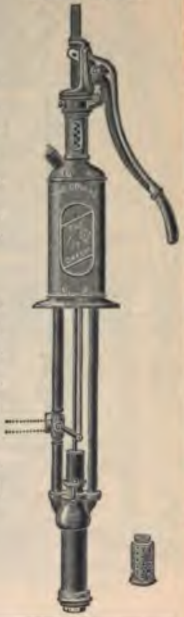


FIG. 873.



Patented December 6, 1887.

Fig. 864 represents "The Daisy" Double-Acting Force Pump, arranged with brass three-way cock and connecting rod, for distributing water to any part of the premises, house, barns, etc. This Pump is more fully described under **Fig. 831,** page 41, and would invite a comparison of our prices on these pumps with any other anti-freezing device of this nature.

Fig. 873 represents the same Pump with Wind Mill top, which is more commonly used when any quantity of water is desired, or for continuous pumping. This style of top is also liked because the piston rod is guided above and moves up and down in a straight line, and because there is no opening through which anything can find its way into the well. Wind Mill Slides are not furnished unless specially ordered. Stroke, 6 inches.

FIG. 864. Sizes, Prices, Etc.

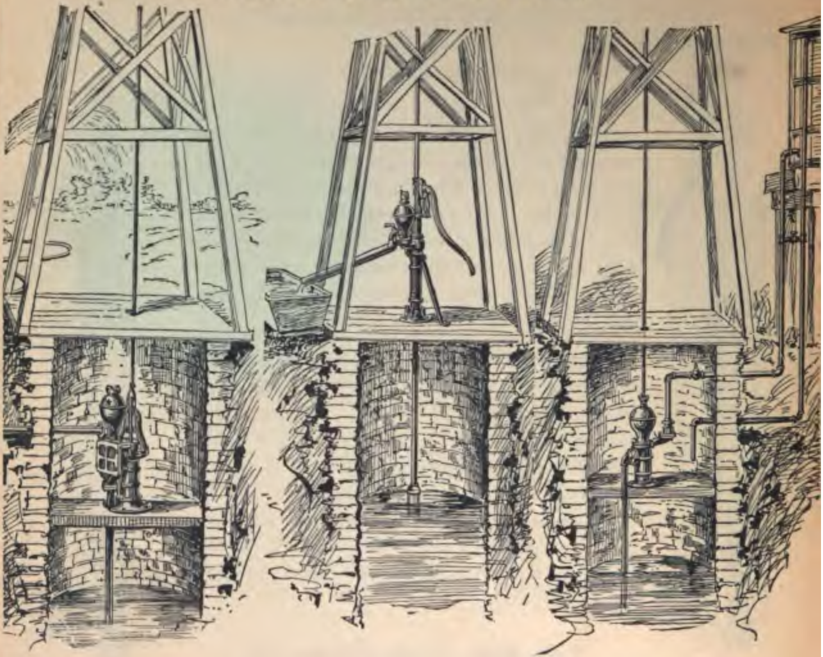
No.	Dia. Cyl.	Suc.	Stroke.	For Wells.	Set Length.	Cipher.	Price.
4	3 in.	1¼ in.	6 in.	26 feet.	5½ ft.	Wassail	$17.00
6	3½ "	1½ "	6 "	26 "	5½ "	Wast	19.00

FIG. 873. Sizes, Prices, etc.

No.	Dia. Cyl.	Suc.	Stroke.	For Wells.	Set Length.	Cipher.	Price.
4	3 in.	1¼ in.	6 in.	26 feet.	5½ ft.	Waste	$18.00
6	3½ "	1½ "	6 "	26 "	5½ "	Wasteful	20.00

When supplied with brass-lined Cylinders we add $1.50 to list of 3 inch Pumps and *$1.75 to list of 3½ inch Pumps.*

GOULDS WIND MILL PUMPS.



Probably no greater labor-saving and useful device has ever been invented than the Wind Mill or Engine, as they are sometimes called, and while to the early ages belong the title of invention, to our own, and especially to American manufacturers, belong the claim of the greatest development and progress from the huge fan or sail-laden mills to the modern light and handsome mills capable of resisting the heaviest winds or utilizing the lightest breezes. Their advantages, too, have been so ably voiced by their respective manufacturers, and are so well understood and appreciated to-day, that our words can be but echoes of what has been said before.

Pure water is Nature's greatest boon to man and beast, as well as to arid plains *made fertile and productive* by irrigation, and who has not seen the vanity of depending upon water supply from creeks whose waters are usually exhausted long before the heated term commences. To the farmer, the agriculturist, or the stockman, they present the solution of a most difficult problem of water supply, and render serviceable for many purposes lands which would otherwise be valueless.

Thus, we think we shall be excused in saying that Wind Mills first, and perhaps greatest, usefulness is in pumping water for the many uses of the house, barns, stock, irrigation, etc., although we can claim no greater honor than manufacturing the best type of Pumps for this purpose.

Would you know if we have kept abreast with this progress, examine the following pages showing our different styles of Pumps and Cylinders adapted for every place and purpose, which represent the most approved forms of each class, without multiplying illustrations of practically the same goods to the confusion and detriment of purchasers. With an experience of 35 years embodied in our goods and improvements, they are not offered as experiments, but as representative of the highest class of goods in which nothing has been left undone to increase their strength and efficiency.

The classes are almost as varied as their uses, and we can illustrate but a few.

To the left is our Double-Acting Force Pump, **Fig. 339,** described on page 101, which is of great capacity and adapted for irrigation or large water supplies, and which, in warm climates, may be placed over well.

In the centre is our Lift and Force Pump Standard, **Fig. 413** and cylinder. This standard is illustrated on page 50, and Pumps on two preceding pages are of same class.

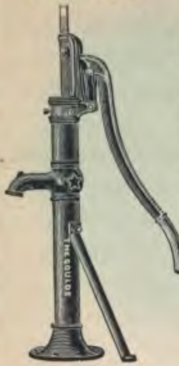
To the right is our **Fig. 514** Syphon Working Barrel, described on page 61, which is one of the most perfect and satisfactory Working Barrels ever made, and used almost exclusively with certain mills.

This class of Pumps, with a few exceptions, is shown between pages 46 and 61, and as we are not engaged in the manufacture or sale of any Mill, we can say with perfect fairness to all that our Pumps are adapted to any, and as a guide to purchasers would refer to tables among latter pages of this book for capacity, speed, power required, etc., of our Pumps, operated under ordinary conditions by different sizes of Mills, and shall be only too pleased to answer any further inquiries or furnish any information in our *power.*

GOULDS "NEW STAR" PUMP STANDARD.

WITH REVOLVING TOP. FOR MANUAL OR WIND POWER.

FIG. 762.



This cut shows one of our new line of Well Pump Standards with Wind Mill tops, consisting of three different sizes. They contain all the advantages suggested by the most recent practice, and will be found to be the best of the kind made by any manufacturer. They are tapped for pipe near the spout, have supporting brace, and are a most suitable standard every way. We can fit the 6 in. or 10 in. stroke Pumps for 1¼, 1½ or 2 in. pipe, as ordered, but always fit as below unless otherwise directed. Those tapped for 2 inch pipe have connection for coupling or wood rod. We do not send Wind Mill Slides except when especially ordered.

FIG. 762. Sizes, Prices, Etc.

Stroke.	Pipe.	No. 3.		No. 4.		No. 5.	
		Cipher.	Price.	Cipher.	Price.	Cipher.	Price.
6 in.	1¼ in.	Vaunter	$7.00	Vauntful	$7.50	Vaunting	$8.00
10 "	2 "			Veader	9.00	Veal	9.50

CYLINDERS.

For cylinders to use with this standard, see pages 201 to 205.

GOULDS "STAR" SECTIONAL PUMP STANDARD.

WITH REVOLVING TOP. FOR MANUAL OR WIND POWER.

FIG. 412.

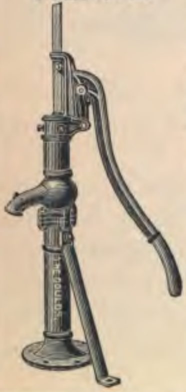


Fig. 412 represents a new and improved design of a Wind Mill Pump Standard, to be used upon wells up to a 150 feet deep. The standard is in two sections, bolted together just below the spout. Between the two sections is interposed a flange, into which the connecting pipe is screwed. These flanges are all of a size, and drilled exactly alike, so that they will interchange, and can be screwed for either 1¼, 1½, 2 or 2½ in. wrought-iron pipe. Always fitted as below unless otherwise directed. We do not send Wind Mill Slides unless especially ordered.

FIG. 412. Sizes, Prices, Etc.

	Stroke.	Pipe.	Height Base to Upper Guide.	Cipher.	Price.
Standard complete....	6 in.	1¼ in.	44½ in.	Lain	$10.00
Standard complete....	10 "	2 "	48¼ "	Lair	11.50

CYLINDERS.

For cylinders to use with this standard, see pages 201 to 205.

GOULDS "STAR" PUMP STANDARD, VARIABLE STROKE.

FOR MANUAL OR WIND POWER.

FIG. 780.

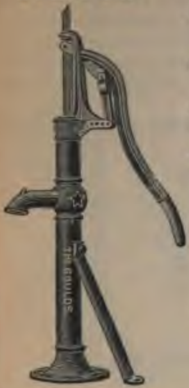


Fig. 780 represents our Variable Stroke Pump with Wind Mill Top, and is particularly adapted to all kinds of Drilled or Tubular Wells, and where working barrels are formed inside of 2 inch pipe.

This Pump can be changed to 6, 8 and 10 inch stroke to suit the length of cylinder, and amount of water required.

The stock is tapped inside the barrel immediately below the spout for 2 inch pipe, unless otherwise ordered — and if a standard is wanted for larger than 2 inch pipe we can arrange our **Fig. 412** with variable top at extra list price.

Wind Mill Slides are not furnished unless especially ordered.

FIG. 780. Sizes, Prices, Etc.

	Stroke.	Pipe.	No. 4.		No. 5.	
			Cipher.	Price.	Cipher.	Price.
Standard complete	6, 8 & 10 in.	2 in.	Tomer	$9.50	Tome	$10.00

CYLINDERS.

For cylinders to use with this standard, see pages 201 to 205.

GOULDS HEAVY SECTIONAL PUMP STANDARD.

FIG. 764.

FOR MANUAL OR WIND POWER.

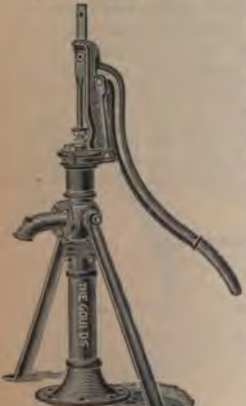


Fig. 764 represents one of our best known extra heavy Deep Well Pump Standards, arranged with Wind Mill Top. It is the strongest and best built standard ever offered to the Trade, and for Wind Mill use is admirably adapted for heavy and constant work. They are successfully used on wells from 100 to 300 feet deep.

Any size from 1¼ inch to 2½ inch pipe can be used with this standard, but always fitted as below unless otherwise ordered.

Wind Mill Slides are not furnished unless especially ordered.

FIG. 764. Sizes, Prices, Etc.

	Stroke.	Pipe.	Height Base to Upper Guide.	Cipher.	Price.
Standard complete	6 in.	1½ in	52½ in.	Valise	$17.00
Standard complete	10 "	2 "	56½ "	Valley	18.50

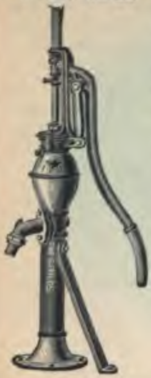
CYLINDERS.

For cylinders to use with this standard, see pages 201 to 205.

GOULDS "NEW STAR" FORCE PUMP STANDARD.

WITH REVOLVING TOP FOR MANUAL OR WIND POWER.

FIG. 422.



We make two sizes, Nos. 1 and 2, of the "New Star" Force Pump Standards with Wind Mill Tops, and believe they combine all the necessary requirements of a Pump of this kind at a moderate price.

All these standards are tapped for pipe near the spout. Each one has an outlet back of the spout for attaching pipe, and the spout is provided with ¾ in. hose tube to screw on, and not with a clap-trap of a clamp.

Always tapped as below unless otherwise ordered. Wind Mill Slides are not sent unless especially ordered.

FIG. 422. Sizes, Prices, Etc.

Stroke.	Pipe.	NO. 1.		NO. 2.	
		Cipher.	Price.	Cipher.	Price.
6 in. 10 "	1¼ in 2 "	Vehement Vehicled	$10.00 11.50	Vehicle Veil	$11.00 12.50

CYLINDERS.

For cylinders to use with this standard, see pages 201 to 205.

GOULDS "NEW STAR" FORCE PUMP STANDARD.

WITH REVOLVING TOP AND COCK SPOUT FOR MANUAL OR WIND POWER.

This is the same Force Pump Standard in all respects as our **Fig. 422,** more fully described above, except that it has a cock spout. When pipe is connected to the side opening behind the spout, there must be some means for closing the spout opening, and a cock does this. Thus one Pump may be made to supply water at the house or any part of the premises as well as at the point of operations, while the cost has been reduced to a minimum for a Pump of this kind. The nose of cock is screwed for 1¼ inch gas pipe thread, and will take ¾ inch hose coupling.

The standards are always tapped for pipe near the spout, as below, unless otherwise ordered. Wind Mill Slides are not sent unless especially ordered.

FIG. 423.

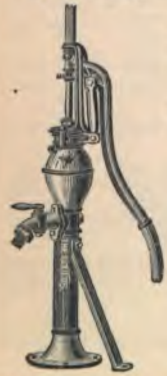


FIG. 423. Sizes, Prices, Etc.

Stroke.	Pipe.	NO. 1.		NO. 2.	
		Cipher.	Price.	Cipher.	Price.
6 in. 10 "	1¼ in. 2 "	Vein Veinless	$12.50 14.00	Veined Veinly	$13.50 15.00

CYLINDERS.

For cylinders to use with this standard, see pages 201 to 205.

GOULDS "STAR" FORCE PUMP STANDARD.

WITH REVOLVING TOP. FOR MANUAL OR WIND POWER.

FIG. 401.

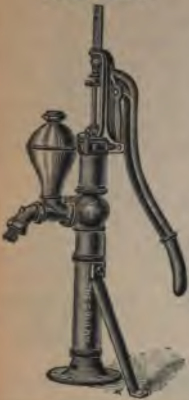


Fig. 401 represents one of our best forms of Wind Mill Force Pumps, and while not one of the cheapest, possesses features which will commend it to practical Well men.

The gas pipe is connected in the body, close under the spout, and either 1, 1¼, 1½, or 2 inch can be used if so ordered, but always fitted as below unless otherwise directed. We *cannot* fit this standard for 2½ inch pipe. When wanted with suction for this size of pipe, see **Fig. 402,** given below.

On the extremity of spout we place a coupling and tube for ¾ inch hose.

Wind Mill Slides are not furnished unless especially ordered.

FIG. 401. Sizes, Prices, Etc.

	Stroke.	Pipe.	Height Base to Upper Guide.	Cipher.	Price.
Standard complete..	6 in.	1¼ in.	48 in.	Meat	$13.00
Standard complete..	10 "	2 "	52 "	Meek	14.50

CYLINDERS.

For cylinders to use with this standard, see pages 201 to 205.

GOULDS "STAR" SECTIONAL FORCE PUMP STANDARD.

WITH REVOLVING TOP. FOR MANUAL OR WIND POWER.

FIG. 402.

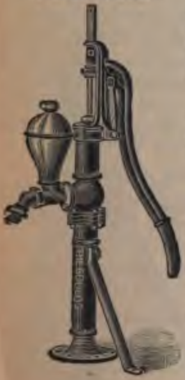


Fig. 402 is similar in appearance and construction to **Fig. 401,** described above, except the standard is built in two sections, same as **Fig. 412;** in fact, like **Figs. 236** and **237,** as we have been led to adopt this method of construction from the great popularity of the latter.

The intermediate flange can be screwed for any size of pipe up to and including 2½ inch, but always shipped as below unless otherwise ordered. The coupling and tube at the spout is fitted for ¾ inch hose.

Wind Mill Slides are not furnished unless especially ordered.

FIG. 402. Sizes, Prices, Etc.

	Stroke.	Pipe.	Height Base to Upper Guide.	Cipher.	Price.
Standard complete..	6 in.	1¼ in.	48½ in.	Mine	$13.50
Standard complete..	10 "	2 "	52½ "	Mint	15.00

We add $2.50 to list when cocks are sent.

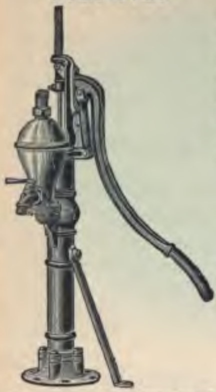
CYLINDERS.

For cylinders to use with this standard, see pages 201 to 205.

GOULDS "SOUTHERN" FORCE PUMP STANDARD.

WITH COCK SPOUT. FOR MANUAL OR WIND POWER.

FIG. 413.



This Wind Mill Force Pump Standard has the intervening flange inserted just above the base. There is a check valve underneath the air chamber, so that these standards are only adapted to warm climates. The flanges can be screwed for any size of pipe up to and including 2½ in. The upper discharge of air chamber is always fitted for 1¼ or 1½ in. pipe, as ordered, and the nose of the cock for ¾ in. hose. Wind Mill Slides are not furnished unless especially ordered. Fitted as below unless otherwise directed.

FIG. 413. Sizes, Prices, etc.

	Stroke.	Pipe.	Height Base to Upper Guide.	Cipher.	Price.
Standard complete	6 in.	1¼ in.	49½ in.	Road	$15.50
Standard complete	10 "	2 "	53½ "	Roan	17.00

CYLINDERS.

For cylinders to go with this standard, see pages 201 to 205.

GOULDS HEAVY SECTIONAL FORCE PUMP STANDARD.

FOR DEEP WELLS. FOR MANUAL OR WIND POWER.

FIG. 765.

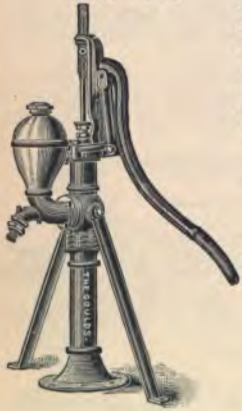


Fig. 765 represents our new Wind Mill Deep Well Force Pump Standard of extra heavy pattern, and constructed in two sections with flange between. This last feature is considered a very great advantage by all who put up these Pumps, for by a change of flanges they can readily be fitted for any size from 1¼ to 2½ in. gas pipe, thus readily adapting them for every need. Always fitted as below unless otherwise ordered. The coupling and the tube at the discharge is fitted for 1 in. hose. Wind Mill Slides are not sent unless especially ordered.

FIG. 765. Sizes, Prices, etc.

	Stroke.	Pipe.	Height Base to Upper Guide.	Cipher.	Price.
Standard comp'te	6 in.	1½ in.	52½ in.	Vallum	$21.00
Standard comp'te	10 "	2 "	56½ "	Valor	22.50

When ordered with a cock in the spout we add $2.50 to list.

EXTRA FLANGES.

1¼ in., 50 cents; 1½, 2 and 2½ in. 60 cents.

CYLINDERS.

For cylinders to use with this standard, see pages 201 to 205.

GOULDS WIND MILL WORKING HEADS.

WITH REVOLVING TOP. SECTIONAL BASE.

FIG. 685.

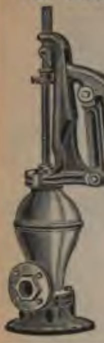
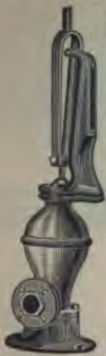


FIG. 686.



These Working Heads are exceptionally strong and heavy, and in their different forms can be used in almost any place for forcing water at a distance from Mill.

Between the air chamber and the base is inserted a flange, which can be fitted for either 1, 1¼, 1½, 2, or 2½ in. suction pipe, as ordered.

We can put on a forked rod for attaching to wood rod of wind mill, if so ordered, at our usual extra price for same. Wind Mill Slides are not furnished unless especially ordered.

Sizes, Prices, Etc.

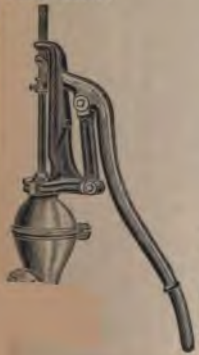
Fig.	Suc. and Dis.	6-IN. STROKE.		10-IN. STROKE.	
		Cipher.	Price.	Cipher.	Price.
685	1¼ in.	Sash	$13.00	Sate	$14.50
686	1¼ "	Toll	15.00	Toller	16.50

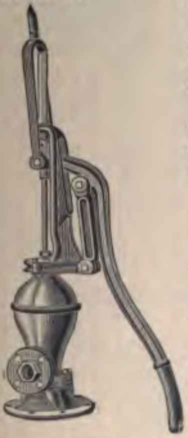
GOULDS WIND MILL WORKING HEADS.

WITH REVOLVING TOP. SECTIONAL BASE OR BRACKET.

FIG. 690.

FIG. 689.





These cuts represent still further modifications of our Working Heads, described above, and the wants of each customer will dictate choice. Under style of **Fig. 815** we also give prices below on a Head similar to **Fig. 690,** but larger, heavier, and stronger every way.

Between the air chamber and the lower section is inserted a flange, which can be fitted for either 1, 1¼, 1½, 2, or 2½ in. suction pipe, as ordered.

Sizes, Prices, Etc.

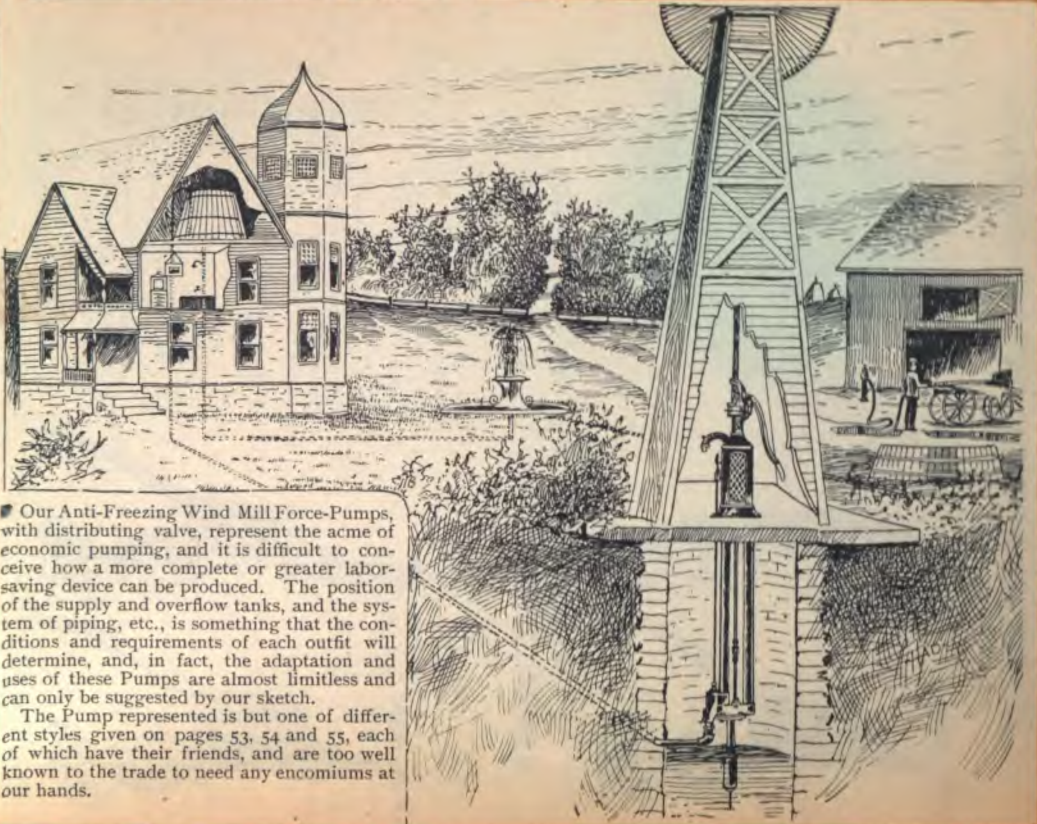
Fig.	Suc. and Dis.	6 IN. STROKE.		10 IN. STROKE.	
		Cipher	Price.	Cipher.	Price.
689	1¼ in.	Tole	$13.00	Toled	$14.50
690	1¼ "	Top	17.00	Topman	18.50

FIG. 815. Size and Price.

Fig. 815, 10 in. stroke, 1½ in. suction and discharge (Waterdog), ... $45.00

CYLINDERS.

For Cylinders to use with above, see page 201 to 205.



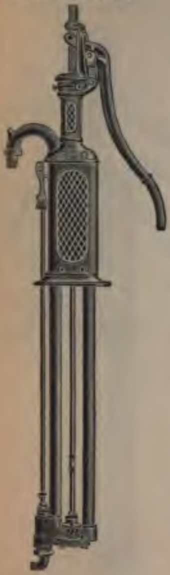
Our Anti-Freezing Wind Mill Force-Pumps, with distributing valve, represent the acme of economic pumping, and it is difficult to conceive how a more complete or greater labor-saving device can be produced. The position of the supply and overflow tanks, and the system of piping, etc., is something that the conditions and requirements of each outfit will determine, and, in fact, the adaptation and uses of these Pumps are almost limitless and can only be suggested by our sketch.

The Pump represented is but one of different styles given on pages 53, 54 and 55, each of which have their friends, and are too well known to the trade to need any encomiums at our hands.

GOULDS ANTI-FREEZING FORCE PUMPS.

REVOLVING TOP. PATENT VERTICAL SHIFTING VALVE WITH LOCK HANDLE.
FOR MANUAL OR WIND POWER.

FIG. 862.



In **Fig. 862** the bearer top revolves to any point, and will interchange for either our common or variable stroke tops. The stuffing boxes are both below ground and cannot be affected by the frost. At the lower working head both the top and bottom attachments are bolted to it, and by simply removing these the plunger and rod may be drawn up through the standard. The distributing valve is placed in a brass-lined chamber, and is raised and lowered by a single movement of the small handle shown at side of standard.

Fig. 866 is the same as **Fig. 862,** except it has our variable stroke top, which can be easily changed to 6, 8 or 10 inch, to suit length of cylinder and water required. Both pumps are fitted for ¾ inch hose coupling at the spout, and for 1 inch iron pipe at brass elbow attachment. Bottom flange is always fitted as below unless otherwise ordered. We do not furnish Wind Mill Slides unless especially ordered.

FIG. 866.

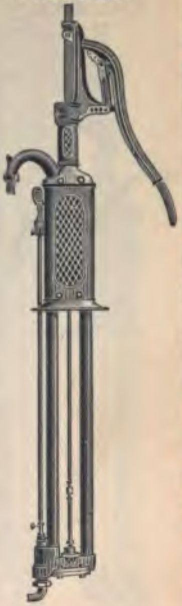


FIG. 862. Sizes, Prices, Etc.

Stroke.	Suction.	Height Base to Upper Guide.	Length Base to Bottom Flange.	Cipher.	Price.
6 in.	1¼ in.	45 in.	56 in.	Vow	$16.00
10 "	2 "	50 "	56 "	Vowed	17.50

FIG. 866. Sizes, Prices, Etc.

Stroke.	Suction.	Height Base to Upper Guide.	Length Base to Bottom Flange.	Cipher.	Price.
6, 8 or 10 in.	2 in.	50 in.	56 in.	Wafture	$18.50

CYLINDERS.

For Cylinders to use with above, see pages 201 to 205.

GOULDS ANTI-FREEZING FORCE PUMPS.

WITH PATENT DISTRIBUTING ATTACHMENT. FOR MANUAL OR WIND POWER.

FIG. 863.

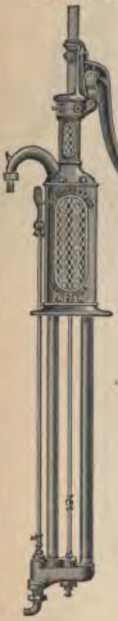


FIG. 670.

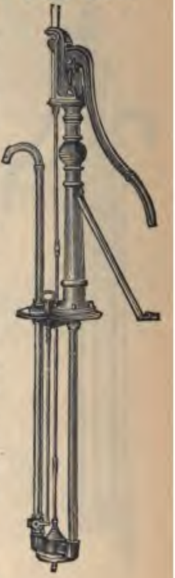


Fig. 863 is very similar in design to our **Fig. 862,** and possesses all the good features of that Pump, and fully described on previous page, only being of somewhat lighter pattern and build. In this way we have been enabled to reduce the price of Pump without impairing its usefulness for the vast majority of places and uses, and we believe it will meet the entire approval of the trade.

Always fitted for ¾ in. hose coupling at the spout, and 1 in. iron pipe at elbow attachment. We cannot fit the Pump except as specified below, and make only with 6 in. stroke top.

Fig. 670 shows our Anti-Freezing Wind Mill Force Pump, *with three-way cock*, shifting rod, goose neck spout, and air chamber. The stuffing-box is over four feet below the platform; the air is compressed in the pipe running parallel with the connecting pipe, hence it has a large amount of surface, and produces a very uniform and even pressure on the column of water.

A coupling and tube is placed on the spout, fitted for ¾ in. hose. Wind Mill Slides are not sent unless especially ordered.

FIG. 863. Sizes, Prices, etc.

Stroke.	Pipe.	Height Base to Upper Guide.	Length Base to Bottom Flange.	Cipher.	Price.
6 in.	1¼ in.	45 in.	56 in.	Wag	$15.00

FIG. 670. Sizes, Prices, etc.

Stroke.	Pipe.	Height Base to Upper Guide.	Length Base to Bottom Flange.	Cipher.	Price.
6 in.	1¼ in.	46 in.	51 in.	Roar	$16.00
10 "	2 "	50 "	51 "	Roast	17.50

When ordered without the three-way cock deduct $2.00 from list.

CYLINDERS.

For Cylinders to use with above, see pages 201 to 205.

GOULDS ANTI-FREEZING FORCE PUMPS.

WITH PATENT VERTICAL SHIFTING VALVE, AND SCREW HANDLE, FOR MANUAL OR WIND POWER.

FIG. 736.

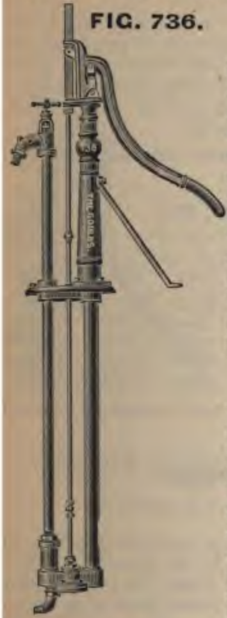


FIG. 865.

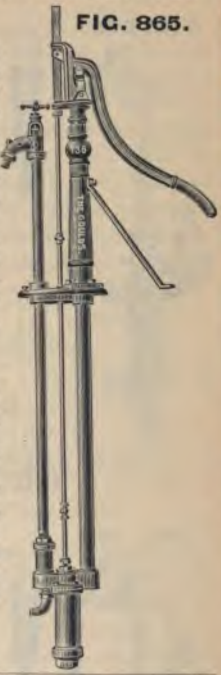


Fig. 736 represents our Anti-Freezing Wind Mill Force Pump, *with vertical distributing valve and brass elbow attachment* at the bottom outlet. We use 1¼ inch iron pipe for the discharge, and this pipe can be pulled up and the valve and working parts examined and repaired. We use 2 inch iron pipe for the air chamber. We use a regular brass stuffing box above the spout, which prevents all leakage when hose is connected. The valve is opened and closed by turning the wheel above the stuffing box, as shown in cut.

Fig. 865 is same Pump, arranged with our iron or brass body and plunger cylinder screwed into lower working head, thus adapting it in this form for shallow wells of 30 ft. depth. By removing cap on lower head a 2 or 2½ inch plunger may be drawn up and repaired, if necessary, without removing Pump from well. Always fitted for ¾ inch hose coupling at the spout, and for 1 inch iron pipe at brass elbow attachment.

FIG. 736. Sizes, Prices, Etc.

Stroke.	Suction.	Height Base to Upper Guide.	Length Base to Bottom Flange.	Cipher.	Price.
6 in.	1¼ in.	46 in.	58 in.	Tolsey	$18.00
10 "	2 "	50 "	58 "	Tombac	19.50

FIG. 865. Sizes, Prices, Etc.

Stroke.	Suc.	2½ INCH IRON CYL.		3 INCH IRON CYL.		2½ INCH BRASS CYL.		3 INCH BRASS CYL.	
		Cipher.	Price.	Cipher.	Price.	Cipher.	Price.	Cipher.	Price.
6 in.	1¼ in	Wattle	$22.50	Waul	$23.00	Waur	$26.00	Wave	$27.00

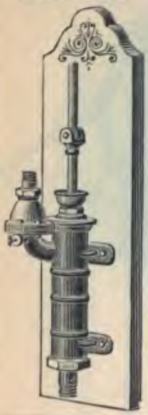
CYLINDERS.

For Cylinders to use with **Fig. 736**, see pages 201 to 205.

GOULDS SUCTION AND FORCE PUMP.

WITH OSCILLATING STUB FOR WIND OR OTHER POWER.

FIG. 265.



FORKED ROD.

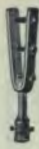


Fig. 265 shows a very complete and cheap Wind Mill Force Pump, which can be used in dug wells of any depth, or, in warm climates, over any style of well where water is not more than 25 feet distant. The shorter the suction pipe on any Pump can be, the easier it will work, and the longer it will last, and be less liable to get out of order.

Fitted for wrought-iron pipe unless otherwise ordered. Stroke, 7 inches.

FIG. 265. Sizes, Prices, Etc.

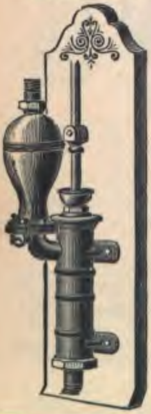
No.	Dia. Cyl.	Suc. and Dis.	Gal. per Stroke.	IRON.		BRASS.	
				Cipher.	Price.	Cipher.	Price.
0	2 in.	1 in.	1-10	Clasp	$7.50	Clay	$19.00
2	2½ "	1¼ "	1-7	Class	9.00	Clean	20.00
4	3 "	1¼ "	1-5	Claw	10.50	Clear	25.00
6	3½ "	1½ "	3-10	Voice	16.00	Void	30.00
8	4 "	2 "	3-8	Voiced	18.00	Voidable	40.00

When arranged with forked or crotched rod to connect to wood rod of Wind Mill, add **$1.50** to list.

GOULDS SUCTION AND FORCE PUMP.

WITH OSCILLATING STUB FOR WIND OR OTHER POWER.

FIG. 266.



FORKED ROD.

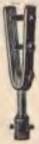


Fig. 266 is similar in appearance and construction to **Fig. 265,** given above, except it has an air chamber in place of check valve. It can be used for same purposes as that Pump, and is better adapted for heavy lifts, as this air chamber relieves the discharge pipe of all pounding and produces a more uniform stream.

Fitted for wrought-iron pipe, unless otherwise ordered. Stroke, 7 inches.

FIG. 266. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Gal. per Stroke.	IRON.		BRASS.	
				Cipher.	Price.	Cipher.	Price.
0	2 in.	1 in.	1-10	Clew	$10.00	Cling	$21.00
2	2½ "	1¼ "	1-7	Cliff	11.00	Clip	22.00
4	3 "	1¼ "	1-5	Climb	12.50	Clock	27.00
6	3½ "	1½ "	3-10	Climber	19.00	Cloak	33.00
8	4 "	2 "	3-8	Climbing	21.00	Clong	43.00

When arranged with forked or crotched rod, as shown above, to *connect with* wood rod of Wind Mill, add **$1.50** to list.

GOULDS BRACKETED PUMP STANDARD.

FOR MANUAL OR WIND POWER.

FIG. 447.

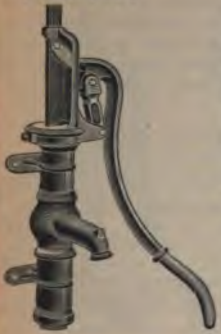


Fig. 447 shows our new Wind Mill Head, for use in connection with either a single or double-acting cylinder. The piston rod, made of flat iron, plays up and down through an aperture in the fulcrum which acts as a guide, and also through the lever provided with a slot in the upper end, when the Engine or Mill is in operation. When there is no wind to propel the Mill, the piston rod is secured to the lever by a bolt, and the working of the Pump can be continued by hand, if necessary, without further trouble. A gas pipe thread is cut in the bottom attachment to join the cylinder to the standard.

FIG. 447. Size and Price.

Wind Mill Head, for 1 or 1¼ in. pipe, . (Fowl), . $5.50

GOULDS DOUBLE-ACTING SUCTION AND FORCE PUMP.

WITH BRACKETS. NO PLANK.

FIG. 448.

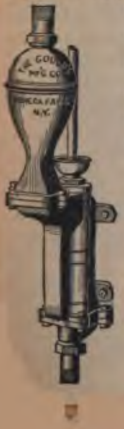


Fig. 448 shows a Double-Acting Force Pump, with brackets, by many preferred for use with Wind Mills. The piston rod can be made with a stub end to *weld* on an additional rod or with a malleable coupling for *screwing* on the rod. The smaller sizes are preferably employed on account of the small degree of power requisite, while the quantity of water obtained is equal to the capacity of a single-acting cylinder of much greater size. Stroke, 7 inches.

FIG. 448. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Dis.	Gal. per Rev.	IRON.		BRASS.	
					Cipher.	Price.	Cipher.	Price.
0	2 in.	1¼ in.	1¼ in.	1-5	Fox	$12.00	Fred	$25.00
1	2¼ "	1¼ "	1¼ "	1-4	Frail	12.50	Free	26.00
2	2½ "	1¼ "	1¼ "	2-7	Frame	15.50	Fresh	35.00
3	2¾ "	1¼ "	1¼ "	1-3	Frank	17.00	Fret	42.00
4	3 "	1½ "	1¼ "	2-5	Fray	19.00	Friar	60.00
6	3½ "	1½ "	1½ "	2-3	Freak	22.00	Frill	70.00
8	4 "	2 "	2 "	4-5	Frit	38.00	Frisk	95.00

GOULDS "PACIFIC" SUCTION AND FORCE PUMP.

FOR MANUAL OR WIND POWER.

FIG. 674.

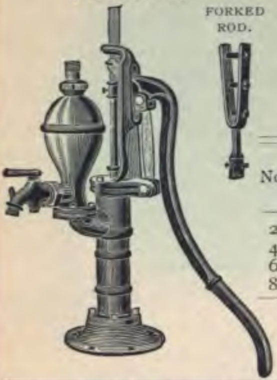


Fig. 674 represents our "Pacific" Force Pump on base for hand or wind mill use. The Pumps have been upon the market for some years, and are preferred above all others in certain localities. They are made in the very best manner, and combine strength with graceful proportions. All are made with brass cased rods, brass stuffing box, and provided with iron cocks with brass plugs. Stroke, 6½ in.

FIG. 674. Sizes, Prices, etc.

No	Dia.Cyl	Suc.and Dis.	IRON.		BRASS CYL.		BRASS.	
			Cipher.	Price.	Cipher.	Price.	Cipher.	Price.
2	2½ in.	1¼ in.	Robe	14.50	Robin	20.00	Rock	25.50
4	3 "	1¼ "	Rod	16.50	Roe	21.50	Roil	37.50
6	3½ "	1½ "	Roll	24.00	Romp	32.00	Rood	46.00
8	4 "	2 "	Roof	25.50	Rook	38.50	Room	55.50

When arranged with forked or crotched rod, as shown above, *instead of* the lever and bearer to connect to wood rod of wind mill, no extra charge.

GOULDS "PACIFIC" SUCTION AND FORCE PUMP.

FOR MANUAL OR WIND POWER.

FIG. 601.

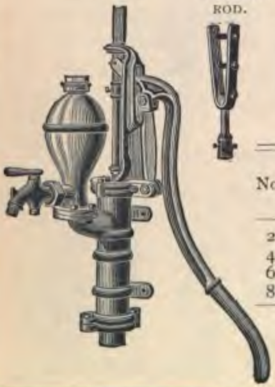


Fig. 601 represents our "Pacific" Force Pump with brackets for hand or wind mill use. It is a strong and efficient Pump, having a brass cased rod and brass stuffing box. We build this style of Pump of iron, or with cylinder and piston of brass, or entirely of brass except the lever, bearer, and air chamber, while all are provided with iron cocks with brass plugs. Stroke, 6½ in.

FIG. 601. Sizes, Prices, etc.

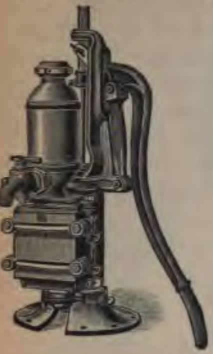
No.	Dia.Cyl	Suc.and Dis.	IRON.		BRASS CYL.		BRASS.	
			Cipher.	Price.	Cipher.	Price.	Cipher.	Price.
2	2½ in.	1¼ in.	Life	14.50	Lift	20.00	Light	25.50
4	3 "	1¼ "	Limb	16.50	Lime	21.50	Limp	37.50
6	3½ "	1½ "	Line	24.00	Link	32.00	Lint	46.00
8	4 "	2 "	Lion	25.50	Lisp	38.50	List	55.50

When arranged with forked rod, as shown above, *instead of* the lever and bearer to connect to wood rod of wind mill, no extra charge.

"PACIFIC" DOUBLE-ACTING SUCTION AND FORCE PUMP.

FOR MANUAL, WIND, OR OTHER POWER.

FIG. 840.



FORKED ROD.

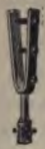


Fig. 840 represents our New "Pacific" Double-Acting Force Pump, built to supplant our old **Fig. 638,** and can hardly say too many good words for it. It is strong and compactly built, the valves being under one plate in front. These valves are made of bronze, rubber faced, of an entirely new pattern, and we can commend it for any place where water is within suction distance. Suction and discharge openings can be fitted for 1¼ or 2 inch pipes, but always fit as below unless otherwise ordered.

Plugs are provided for emptying Pump in cold weather. Stroke, 6 inches.

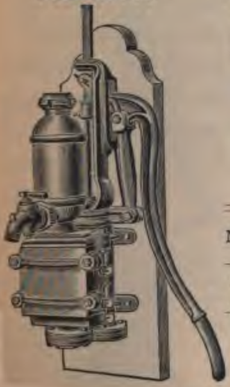
FIG. 840. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Gal. per Stroke.	IRON.		BRASS LINED.	
				Cipher.	Price.	Cipher.	Price.
2	2½ in.	1½ in.	1-4	Warish	$25.00	Wark	$30.00
4	3 "	1½ "	1-3	Warison	30.00	Warling	35.00

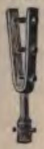
"PACIFIC" DOUBLE-ACTING SUCTION AND FORCE PUMP.

FOR MANUAL, WIND, OR OTHER POWER.

FIG. 841.



FORKED ROD.



This cut shows a new and improved Double-Acting Force Pump, on plank, which can be connected to Wind Mill, or operated by hand power, as occasion requires. Its construction is essentially the same as **Fig. 840,** and our remarks on that Pump will apply to both.

We deduct $1.50 from lists given below when an iron union with brass coupling is supplied instead of the cock, and $3.50 where both cock and air chamber are not furnished. Nose of cock screwed for 1 inch hose coupling. Stroke, 6 inches.

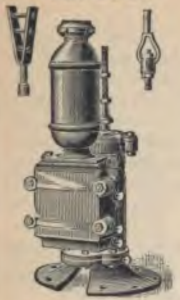
FIG. 841. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Gal. per Stroke.	IRON.		BRASS LINED.	
				Cipher.	Price.	Cipher.	Price.
2	2½ in.	1½ in.	1-4	Warlock	$25.00	Warm	$30.00
4	3 "	1½ "	1-3	Warly	30.00	Warmer	35.00

When arranged with forked or crotched rod, instead of the lever and bearer to connect to wood rod of Wind Mill, no extra charge.

"PACIFIC" DOUBLE-ACTING SUCTION AND FORCE PUMP.

FIG. 878.



FOR DEEP OR SHALLOW WELLS.

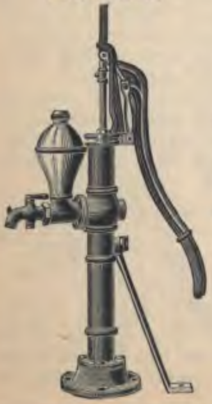
Fig. 878 represents our "New Pacific" Double-Acting Force Pump, described on previous page, arranged for other than manual power. This Pump may be used over wells of any description, and placed any reasonable distance down, in open or dug wells. It embodies all the good features of a Pump of this class, and will be a valuable addition to our line of these goods. The suction pipe screws into a flange underneath the valve box and where there is no danger of freezing, a check valve at its extremity is recommended. Prices include either a forked rod for wood rod or harp connection for iron rod.

FIG. 878. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Stroke.	Gal. per Stroke.	Cipher.	Price.
2	2½ in.	1¼ in.	6 in.	1-4	Warranty	$25.00
4	3 "	1½ "	6 "	1-3	Warray	30.00
6	3½ "	2 "	6 "	2-5	Warren	37.50
8	4 "	2 "	6 "	1-2	Warrenter	45.00

GOULDS "SOUTHERN STAR" SUCTION AND FORCE PUMP.

FIG. 874.



FOR WIND MILL, HOUSE USE, ETC.

Fig. 874 represents our "Southern Star" Wind Mill Force Pump for wind mill, house use, etc., in warm climates.

An outlet is also provided back of spout for attaching pipe, and the spout has a 1 inch hose tube. The Pump can be emptied of water by raising the lever and tripping the valve. It is adapted for wells from 20 to 25 feet deep. Stroke, 6 inches.

FIG. 874. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Gal. per Stroke.	Height Base to Upper Guide.	Cipher.	Price.
4	3 in.	1¼ in.	1-6	48 in.	Wappened	$15.50
5	3¼ "	1½ "	1-5	50 "	Wapper	16.50
6	3½ "	1½ "	1-4	50 "	Wappered	17.50

GOULDS NEW "SYPHON" SUCTION AND FORCE PUMP.

FOR WIND OR OTHER POWER.

In our Syphon Self-Priming Working Barrel for deep or shallow wells, the water enters through the suction opening, into the reservoir, or outer cylinder, filling it with water to that point. Into this body of water the inner cylinder, provided with brass plunger, etc., is suspended, leaving suitable space between inner and outer walls and at bottom, the effect of which is pump is always primed and ready for use.

FIG. 514.

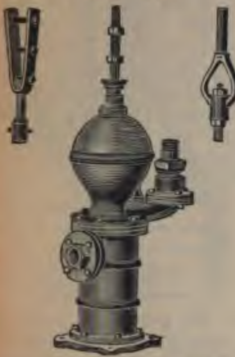


FIG. 514. Sizes, Prices, Etc.

Dia. Inner Cyl.	Suc. and Dis.	Stroke.	Gal. per Stroke.	BRASS INNER CYLINDER.	
				Cipher.	Price.
2½ in.	1½ in.	8½ in.	1-6	Hewn	$25.00
3 "	1½ "	8½ "	1-4	Hid	25.25
3½ "	2 "	8½ "	1-3	Hide	27.25
4 "	2 "	8½ "	2-5	High	30.50
4 "	2 "	10 "	1-2	Variate	40.00
4½ "	2½ "	10 "	2-3	Varicose	45.00
5 "	2½ "	10 "	7-8	Varied	50.00
5½ "	3 "	10 "	1	Variety	56.00
6 "	3 "	10 "	1 1-5	Varify	64.00
4½ "	2½ "	12 "	4-5	Various	54.00
5 "	2½ "	12 "	1	Varlet	60.00
5½ "	3 "	12 "	1 1-4	Varnish	66.00
6 "	3 "	12 "	1 1-2	Varry	78.00

Pumps arranged with forked rod or harp connection to connect to rod of Wind Mill, we add $1.50 to list on sizes up to 4 inch, and $2.50 extra on the other sizes.

GOULDS NEW "SYPHON" SUCTION AND FORCE PUMP.

FIG. 776.

FOR MANUAL OR WIND POWER.

Fig. 776 is our "Syphon" Working Barrel, described above, arranged with Wind Mill Top for either hand or Wind Mill power. Hook spouts only sent when ordered, and then at an extra price.

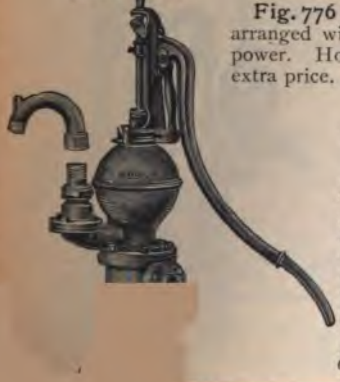
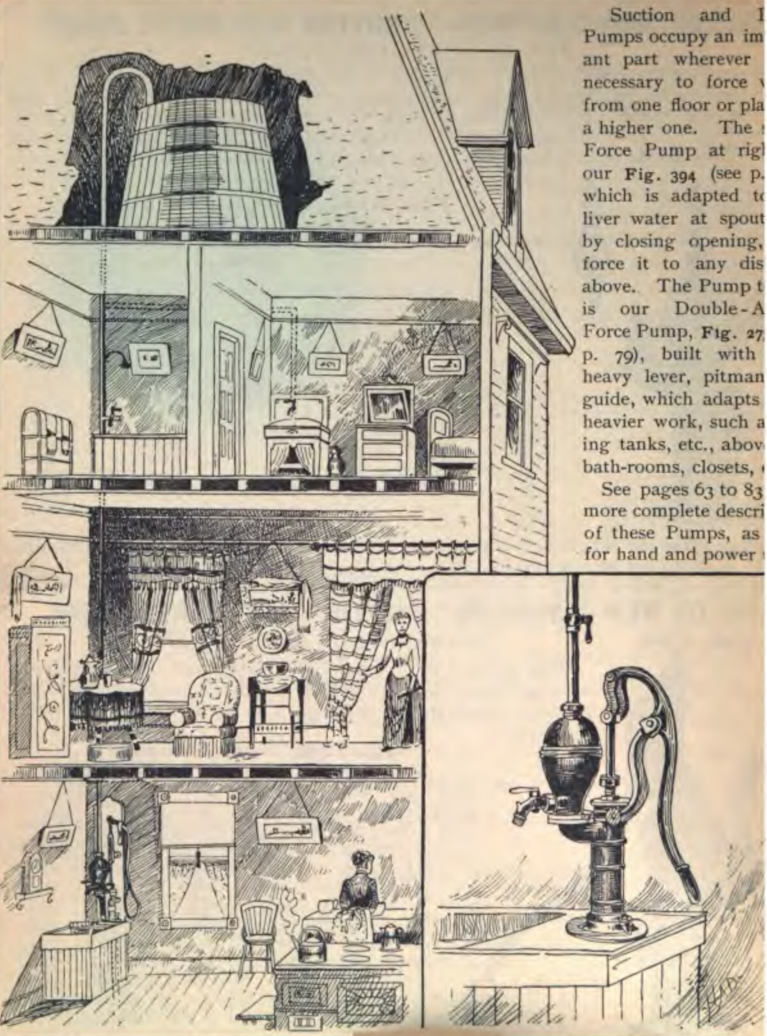


FIG. 776. Sizes, Prices, Etc.

Dia. Inner Cyl.	Suc. and Dis.	Stroke by Hand.	Stroke by Power.	Gal. per Stroke.	BRASS INNER CYL.	
					Cipher.	Price.
2½ in	1½ in	6 in.	8½ in.	1-6	Tong	$28.50
3 "	1½ "	6 "	8½ "	1-4	Tongs	28.75
3½ "	2 "	6 "	8½ "	1-3	Tung	31.00
4 "	2 "	6 "	8½ "	2-5	Tonic	34.50
3½ "	2 "	10 "	10 "	2-5	Toot	33.00
4 "	2 "	10 "	10 "	1-2	Tooth	37.50
4½ "	2½ "	10 "	10 "	2-3	Vari	50.00
5 "	2½ "	10 "	10 "	7-8	Variably	55.00
5½ "	3 "	10 "	10 "	1	Variant	61.00
6 "	3 "	10 "	10 "	1 1-5	Variance	70.00

Suction and I Pumps occupy an im ant part wherever necessary to force from one floor or pla a higher one. The Force Pump at rig our **Fig. 394** (see p. which is adapted t liver water at spout by closing opening, force it to any dis above. The Pump t is our Double-A Force Pump, **Fig. 27** p. 79), built with heavy lever, pitman guide, which adapts heavier work, such a ing tanks, etc., abov bath-rooms, closets,

See pages 63 to 83 more complete descr of these Pumps, as for hand and power



GOULDS SUCTION AND FORCE PUMP.

WITH REVOLVING BRAKE, CHECK VALVE, AND BRASS PISTON ROD.

FIG. 390.

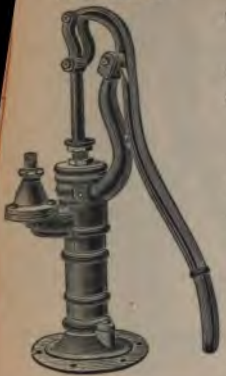


Fig. 390 represents our Hand Force Pump on base with upper check valve discharge.

We make this style of Pump of iron, or cylinder and piston of brass, or all brass except the lever, fulcrum, and base, as per description given below.

FIG. 390. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	IRON.		BRASS CYL.		BRASS.	
			Cipher.	Price.	Cipher.	Price.	Cipher.	Price.
0	2 in.	1 in.	Child	8.00	Cart	13.50	Carve	20.00
2	2½ "	1¼ "	Chin	9.50	Drum	14.00	Drunk	21.00
4	3 "	1¼ "	Cite	11.00	Dry	15.00	Dryad	32.00
6	3½ "	1½ "	Curd	17.00	Cured	24.00	Curer	38.00
8	4 "	2 "	Cure	18.00	Curfue	30.00	Curious	47.00

The 2, 2½, and 3 inch Pumps work 6 inches stroke, and 3½ and 4 inch, 7½ inches.

GOULDS SUCTION AND FORCE PUMP.

WITH REVOLVING BRAKE, CHECK VALVE AND BRASS PISTON ROD.

FIG. 391.

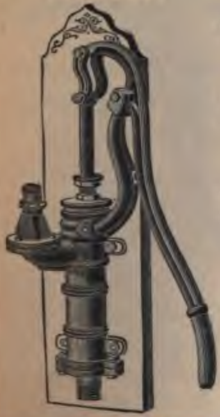


Fig. 391 represents our Hand Force Pump on plank, with upward check valve discharge.

We make this style of Pump of iron, or with cylinder and piston of brass, or entirely of brass, except the lever and fulcrum, as per description given below.

FIG. 391. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	IRON.		BRASS CYL.		BRASS.	
			Cipher.	Price.	Cipher.	Price.	Cipher.	Price.
0	2 in.	1 in.	Chime	8.00	Case	13.50	Chair	20.00
2	2½ "	1¼ "	Chip	9.50	Ducat	14.00	Ducal	21.00
4	3 "	1¼ "	City	11.00	Duchy	15.00	Duchess	32.00
6	3½ "	1½ "	Curl	17.00	Current	24.00	Curried	38.00
8	4 "	2 "	Curly	18.00	Currier	30.00	Curry	47.0

The 2, 2½, and 3 inch Pumps work 6 inches stroke, a the 3½ and 4 inch, 7½ inches.

GOULDS SUCTION AND FORCE PUMP.

WITH REVOLVING BRAKE, AIR CHAMBER, AND BRASS PISTON ROD.

FIG. 392.

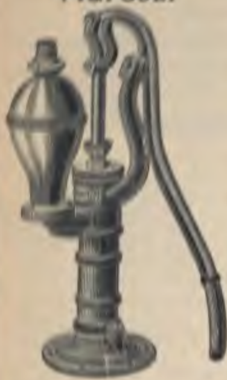


Fig. 392 represents our Hand Force Pump on base, wi upward discharge air chamber.

We make this style of Pump of iron, or with cylinder ar piston of brass, except lever, fulcrum, and air chamber, per description given below.

FIG. 392. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	IRON.		BRASS CYL.		BRASS.	
			Cipher.	Price.	Cipher.	Price.	Cipher.	Pric
2	2½ in.	1¼ in.	Chirp	10.00	Duck	15.00	Ducked	22.
4	3 "	1¼ "	Civil	12.00	Due	16.00	Duct	33.
6	3½ "	1½ "	Vacancy	18.00	Vacate	26.00	Vacating	40.
8	4 "	2 "	Vacant	20.00	Vacated	32.00	Vacation	49.

The 2½ and 3 inch Pumps work 6 inches stroke, and tl 3½ and 4 inch, 7½ inches.

GOULDS SUCTION AND FORCE PUMP.

WITH REVOLVING BRAKE, AIR CHAMBER, AND BRASS PISTON ROD.

FIG. 393.

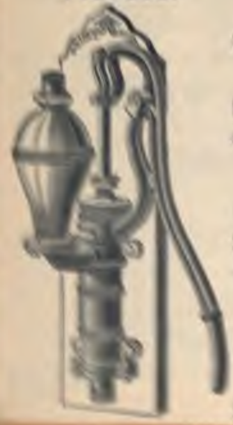


Fig. 393 represents our Hand Force Pump on plank wi upward discharge air chamber.

We make this style of Pump of iron, or with cylinder ar piston of brass, or entirely of brass, except lever, fulcru and air chamber, as per description given below.

FIG. 393. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	IRON.		BRASS CYL.		BRASS.	
			Cipher.	Price.	Cipher.	Price.	Cipher.	Pri
2	2½ in.	1¼ in.	Chop	10.00	Dual	15.00	Dub	22.
4	3 "	1¼ "	Claim	12.00	Duel	16.00	Dubious	33.
6	3½ "	1½ "	Vaccary	18.00	Vacuate	26.00	Vacuist	40.
8	4 "	2 "	Vaccine	20.00	Vacuation	32.00	Vacuity	49.

The 2½ and 3 inch Pumps work 6 inches stroke, and t 3½ and 4 inch, 7½ inches.

GOULDS SUCTION AND FORCE PUMP, WITH COCK.

WITH REVOLVING BRAKE, AIR CHAMBER AND BRASS PISTON ROD.

FIG. 394.

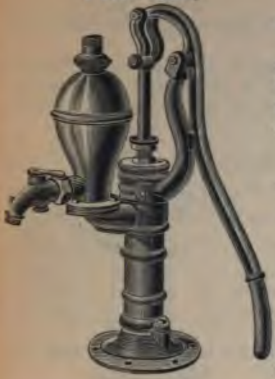


Fig. 394 represents our Hand Force Pump on base with double discharge air chamber and cock.

We make this style of Pump of iron, or with cylinder and piston of brass, or entirely of brass, except lever, fulcrum, base, and air chamber. All Pumps are provided with an iron cock and brass plug, unless otherwise ordered.

FIG. 394. (Weak.) **Sizes, Prices, Etc.**

No.	Dia. Cyl.	Suc. and Dis.	Gal. per Stroke.	Iron.	Brass Cyl.	Brass.
2	2½ in.	1¼ in.	1-8	$12.50	$18.00	$23.50
4	3 "	1¼ "	1-6	14.50	19.50	35.00
6	3½ "	1½ "	1-3	21.50	29.50	43.50
8	4 "	2 "	2-5	22.50	35.50	52.50

The 2½ and 3 inch Pumps work 6 inches stroke, and 3½ and 4 inch, 7½ inches.

GOULDS SUCTION AND FORCE PUMP, WITH COCK.

WITH REVOLVING BRAKE, AIR CHAMBER AND BRASS PISTON ROD.

FIG. 395.

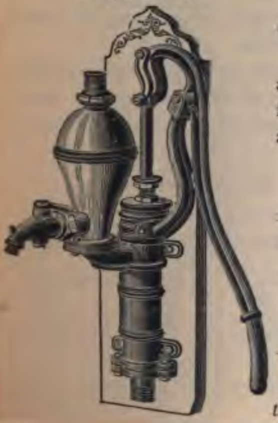


Fig. 395 represents our Hand Force Pump on plank, with double discharge air chamber and cock.

We make this style of Pump of iron, or with cylinder and piston of brass, or entirely of brass, except the lever, fulcrum, and air chamber. All pumps are provided with an iron cock with brass plug, unless otherwise ordered.

FIG. 395. (Weal.) **Sizes, Prices, Etc.**

No.	Dia. Cyl.	Suc. and Dis.	Gal. per Stroke.	Iron.	Brass Cyl.	Brass.
2	2½ in.	1¼ in.	1-8	$12.50	$18.00	$23.50
4	3 "	1¼ "	1-6	14.50	19.50	35.00
6	3½ "	1½ "	1-3	21.50	29.50	42.50
8	4 "	2 "	2-5	22.50	35.50	52.5

The 2½ and 3 inch Pumps work 6 inches stroke, an *the* 3½ and 4 inch, 7½ inches.

GOULDS SUCTION AND FORCE PUMP.

WITH REVOLVING BRAKE, AIR CHAMBER AND BRASS PISTON ROD.

FIG. 396.

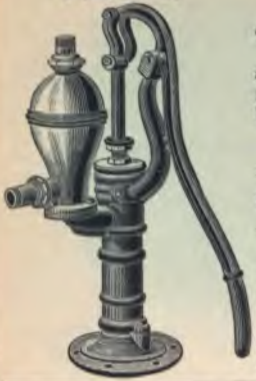


Fig. 396 represents our Hand Force Pump on base with double discharge air chamber.

We make this style of Pump of iron, or with cylinder and piston of brass, or entirely of brass, except the lever, fulcrum, base, and air chamber, as per description given below.

FIG. 396. (Waygoer.) **Sizes, Prices, Etc.**

No.	Dia. Cyl.	Suc. and Dis.	Gal. per Stroke.	Iron.	Brass Cyl.	Brass.
2	2½ in.	1¼ in.	1-8	$11.00	$16.50	$22.00
4	3 "	1¼ "	1-6	13.00	18.00	33.50
6	3½ "	1½ "	1-3	19.00	27.00	41.00
8	4 "	2 "	2-5	20.00	33.00	50.00

The 2½ and 3 inch Pumps work 6 inches stroke, and the 3½ and 4 inch, 7½ inches.

GOULDS SUCTION AND FORCE PUMP.

WITH REVOLVING BRAKE, AIR CHAMBER AND BRASS PISTON ROD.

FIG. 397.

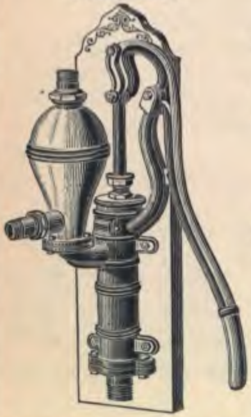


Fig. 397 represents our Hand Force Pump on plank with double discharge air chamber.

We make this style of Pump of iron, or with cylinder and piston of brass, or entirely of brass, except the lever, fulcrum, and air chamber, as per description given below.

FIG. 397. (Waylay.) **Sizes, Prices, Etc.**

No.	Dia. Cyl.	Suc. and Dis.	Gal. per Stroke.	Iron.	Brass Cyl.	Brass.
2	2½ in.	1¼ in.	1-8	$11.00	$16.50	$22.00
4	3 "	1¼ "	1-6	13.00	18.00	33.50
6	3½ "	1½ "	1-3	19.00	27.00	41.00
8	4 "	2 "	2-5	20.00	33.00	50.00

The 2½ and 3 inch Pumps work 6 inches stroke, and the 3½ and 4 inch, 7½ inches.

GOULDS SUCTION AND FORCE PUMP.

WITH REVOLVING BRAKE, AIR CHAMBER AND BRASS PISTON ROD.

FIG. 398.

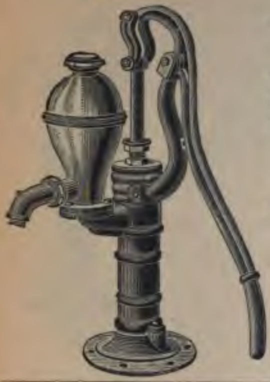


Fig. 398 represents our Hand Force Pump on base, with horizontal discharge air chamber.

We make this style of Pump of iron, or with cylinder and piston of brass, or entirely of brass, except lever, fulcrum, base, and air chamber, as per description given below.

FIG. 398. (Waylayer.) **Sizes, Prices, Etc.**

No.	Dia. Cyl	Suc. and Dis.	Gal. per Stroke.	Iron.	Brass Cyl.	Brass.
2	2½ in.	1¼ in.	1-8	$10.00	$15.00	$22.00
4	3 "	1¼ "	1-6	12.00	16.00	33.00
6	3½ "	1½ "	1-4	18.00	25.00	40.00
8	4 "	2 "	2-5	21.00	32.00	49.00

The 2½ and 3 inch Pumps work 6 inches stroke, and the 3½ and 4 inch, 7½ inches.

GOULDS SUCTION AND FORCE PUMP.

WITH REVOLVING BRAKE, AIR CHAMBER AND BRASS PISTON ROD.

FIG. 399.

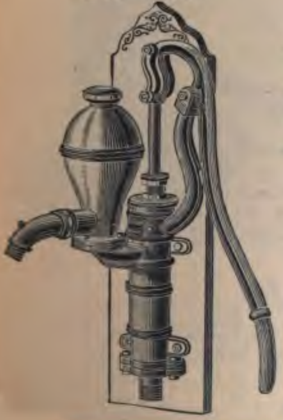


Fig. 399 represents our Hand Force Pump on plank, with horizontal discharge air chamber.

We make this style of Pump of iron, or with cylinder and piston of brass, or entirely of brass, except the lever, fulcrum, and air chamber, as per description given below.

FIG. 399. (Wayleave.) **Sizes, Prices, Etc.**

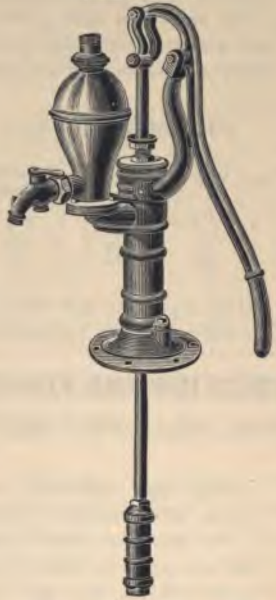
No.	Dia. Cyl.	Suc. and Dis.	Gal. per Stroke.	Iron.	Brass Cyl	Brass.
2	2½ in.	1¼ in.	1-8	$10.00	$15.00	$22.00
4	3 "	1¼ "	1-6	12.00	16.00	33.00
6	3½ "	1½ "	1-3	18.00	25.00	40.00
8	4 "	2 "	2-5	21.00	32.00	49.00

The 2½ and 3 inch Pumps work 6 inches stroke, and the 3½ and 4 inch, 7½ inches.

GOULDS SUCTION AND FORCE PUMP, WITH COCK.

WITH THREE FEET WROUGHT-IRON CONNECTING PIPE.

FIG. 264.



This is identical with some of the Pumps on the preceding pages in form and and has in addition a 3 feet gas pipe set length. In the working cylinder a valves, out of reach of frost, which makes these Pumps available in exposed loc

Water can be conducted in two directions by means of the cock furnished wi Pump. The nose of the cock is fitted for 1 inch hose coupling.

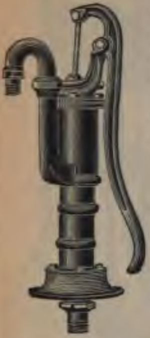
FIG. 264. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Stroke.	Gal. per Stroke.	Height Base to Lever Top.	Base to Lower Valve.	Cipher.	F
2	2½ in.	1¼ in.	6 in.	1-8	31 in.	48 in.	Clan	$
4	3 "	1¼ "	6 "	1-6	31 "	48 "	Clap	

GOULDS SUCTION AND FORCE PUMP.

WITH GOOSE-NECK DISCHARGE.

FIG. 735.



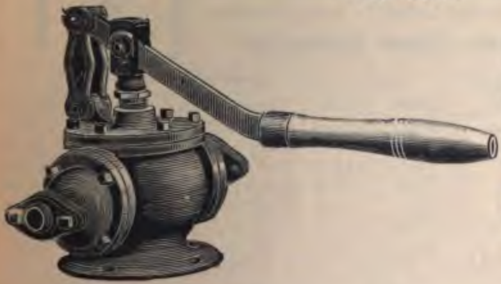
The cut represents a Force Pump of large capacity and very compact in form. It is a single-acting Pump, having two cylinders and plungers, though from the internal arrangement and division of cylinders it has the effect of a double-acting Pump—in the way of producing a continuous and steady stream of water. The top is open so as to avoid the necessity of a stuffing box, and with the working parts of brass, and also a brass valve seat, it presents a very durable and capacious Pump. Stroke, 6 inches.

FIG. 735. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Dis.	IRON.		BRASS CYL., AND PISTONS.		BRASS.	
				Cipher.	Price.	Cipher.	Price.	Cipher.	Price.
2	2½ in	1¼ in.	1 in.	Toise	$10.00	Token	$22.00	Tokay	$25.00
6	3½ "	1½ "	1¼ "	Tol	16.00	Told	39.00	Tola	43.00

GOULDS GLOBE DOUBLE-ACTING FORCE PUMP.

FIG. 651.



The above cut shows a very compact form of Double-Acting Force Pump for drafting water short distances. The suction valves are both on one side of the Pump, and the discharge valves on the other. The cylinder is made of brass. It has a wrought-iron lever and is constructed in a very substantial manner.

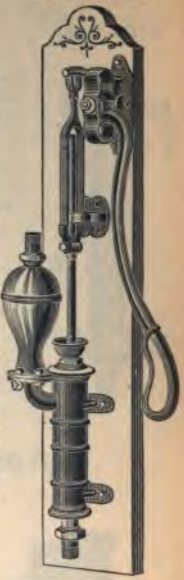
FIG. 651. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Stroke.	Capacity per Rev.	Cipher.	Price.
5	*3¼ in.*	*1 in.*	2½ in.	1-5 gal.	Ratio	$15.00

OULDS HOUSE SUCTION AND FORCE PUMPS.

0.

FIG. 441.



RIGHT AND LEFT-HANDED.

Fig. 440 represents our Single-Acting Suction and Force Pump with brass piston rod, pitman and guide, mounted on a plank for in-door use, and can be made either right or left handed.

It is generally employed for lifting water from wells or cisterns and forcing it up into a more elevated part of the house, for bath rooms, filling tanks, etc. Plumbers wishing to attach copper air chambers usually select this style.

The check valve can be removed and an air chamber substituted without extra fitting.

Fig. 441 represents the same Pump with the addition of an air chamber, which insures a continuous stream of water, and relieves the pipe from the concussion of the water.

The Iron and Brass Cylinder Pumps are fitted for iron pipe and the brass pumps for lead pipe, unless otherwise ordered.

Double discharge air chamber supplied at same price, or brass air chambers made to order at difference in cost of material. Stroke, 7 inches.

FIG. 440. Sizes, Prices, Etc.

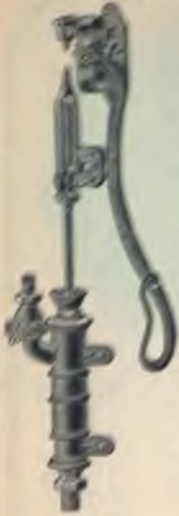
yl.	Suc. and Dis.	Gal. per Stroke.	IRON.		BRASS CYL.		BRASS.	
			Cipher.	Price.	Cipher.	Price.	Cipher.	Price.
n.	1 in.	1-10	Flit	$14.00	Dyer	$19.00	Dwarf	$26.00
"	1¼ "	1-7	Float	15.00	Each	20.00	Dwell	30.00
"	1¼ "	1-6	Flock	15.75	Ead	21.00	Dwine	33.00
"	1¼ "	1-5	Flog	16.50	Eager	22.00	Dyed	35.00
"	1½ "	1-4	Flop	20.00	Eagerly	25.00	Dyke	40.00
"	1½ "	3-10	Flora	22.00	Earing	32.00	Dull	45.00

FIG. 441. Sizes, Prices, Etc.

yl.	Suc. and Dis.	Gal. per. Stroke.	IRON.		BRASS CYL.		BRASS.	
			Cipher.	Price.	Cipher.	Price.	Cipher.	Price
n.	1 in.	1-10	Floss	$16.00	Earn	$22.00	Eagle	$28.00
"	1¼ "	1-7	Flour	17.00	Earth	23.00	Ear	32.00
"	1¼ "	1-6	Flout	17.75	Earwig	24.00	Easter	35.00
"	1¼ "	1-5	Flow	18.50	Ease	25.00	Early	37.00
"	1½ "	1-4	Flown	23.00	Easel	28.00	Easting	43.00
	1½ "	3-10	Fluid	25.00	Easily	35 00	Flail	50.00

GOULDS SUCTION AND FORCE PUMPS.

FIG. 480.



NO PLANKS. FOR WELLS.

FIG. 481.

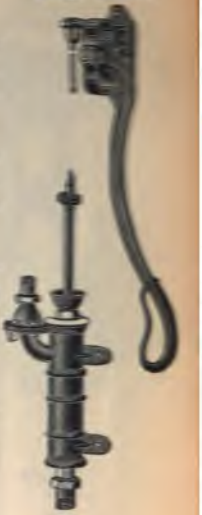


Fig. 480 represents our House Force Pump, with pitman, guide, and guide rod, but with disconnected rod above, for cisterns or wells of any depth.

Fig. 481 is similar to **Fig. 480**, except that it has not the pitman guide or guide rod. It is, however, just as serviceable for short suction and somewhat cheaper.

The cylinders can be placed at either the bottom of well or cistern, or within, say, 15 or 20 feet (suction distance) of water and then proceed as instructed under **Fig. 281**, page 73.

The Iron Pumps are fitted for wrought-iron pipe and the Brass Pumps for lead pipe, unless otherwise ordered. Stroke, 7 inches.

FIG. 480. Sizes, Prices, Etc.

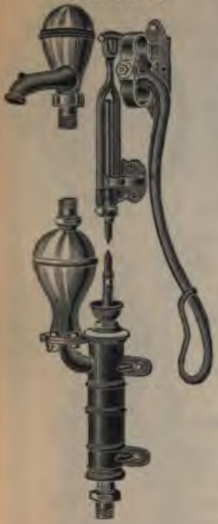
No.	Dis. Cyl.	Suc. and Dis.	Gal. per Stroke.	IRON.		BRASS.	
				Cipher.	Price.	Cipher.	Price.
0	2 in.	1 in.	1-10	Grass	$13.00	Grim	$23.50
2	2½ "	1¼ "	1-7	Grate	13.50	Grin	24.50
3	2¾ "	1¼ "	1-6	Gray	14.00	Grip	27.50
4	3 "	1¼ "	1-5	Graze	15.50	Grist	33.00
5	3¼ "	1½ "	1-4	Greet	19.00	Grit	36.00
6	3½ "	2 "	3-10	Grew	20.50	Groom	46.00

FIG. 481. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Gal. per Stroke.	IRON.		BRASS.	
				Cipher.	Price.	Cipher.	Price.
0	2 in.	1 in.	1-10	Grope	$10.75	Grunt	$21.00
2	2½ "	1¼ "	1-7	Group	11.00	Guard	22.00
3	2¾ "	1¼ "	1-6	Grout	11.50	Guess	25.00
4	3 "	1¼ "	1-5	Grow	13.00	Guide	30.00
5	3¼ "	1½ "	1-4	Grub	16.00	Guile	33.00
6	3½ "	2 "	3-10	Gruel	17.50	Gulf	43.00

GOULDS SUCTION AND FORCE PUMPS.

FIG. 281.



FOR MANUAL OR MACHINE POWER.

Fig. 281 represents a Deep Well Force Pump. The following instructions should be observed in setting these Pumps: At, say, 15 or 20 feet from the bottom of the well, secure the Pump to a timber or plank. At a convenient height above locate the lever and spout air chamber to something. Connect the air chamber above with the one below by a pipe. Join the stub end attached to the lever to the stub end of the Pump.

When ordered without spout air chamber, a deduction of $1.00 in list will be made.

Fig. 892 represents our House Force Pump, with crank shaft and pulley fly wheel, for hand or power.

We can also furnish our Double-Acting Pump, like **Fig. 272,** page 78, mounted in the same way, if desired.

In ordering, always state whether you want a Single or Double-Acting Pump.

Fitted for wrought-iron pipe. Stroke of both Pumps, 7 inches.

FIG. 892.

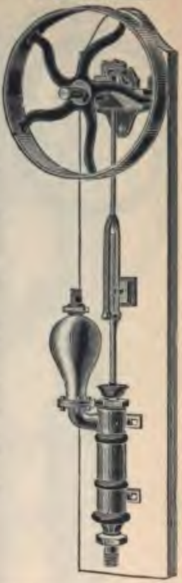


FIG. 281. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Gal. per Stroke.	IRON		BRASS.	
				Cipher.	Price.	Cipher.	Price.
0	2 in.	1 in.	1-10	Dandy	$13.50	Darn	$27.00
2	2½ "	1¼ "	1-7	Dane	14.00	Dart	28.00
3	2¾ "	1¼ "	1-6	Dank	14.50	Dash	31.00
4	3 "	1¼ "	1-5	Dare	16.50	Date	36.50
5	3¼ "	1½ "	1-4	Dared	20.00	Daub	39.50
6	3½ "	2 "	3-10	Dark	22.00	Davit	49.50

FIG. 892. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	SINGLE-ACTING PUMP.			DOUBLE-ACTING PUMP.		
			Gal. per Strk.	Cipher.	Price.	Gal. per Rev.	Cipher.	Price.
2	2½ in.	1¼ in.	1-7	Warmly	$34.00	2-7	Warning	$36.50
3	2¾ "	1¼ "	1-6	Warmless	36.00	1-3	Warp	39.00
4	3 "	1¼ "	1-5	Warmth	39.50	2-5	Warpaint	43.50
5	3¼ "	1½ "	1-4	Warn	42.00	. . . .	. . . .	. .
6	3½ "	2 "	3-10	Warner	47.00	3-5	Warpath	51.00

GOULDS SUCTION AND FORCE PUMPS.

FIG. 712.

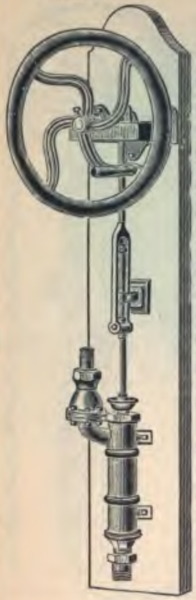
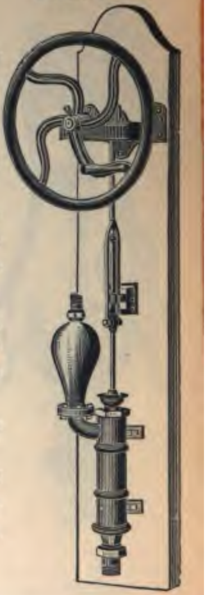


FIG. 713.



MOUNTED ON PLANK, WITH CRANK AND BALANCE WHEEL.

Fig. 712 shows our Single-Acting House Force Pump, with check valve, mounted on plank, with crank shaft and balance wheel, and will be found a welcome substitute for the ordinary lever where any considerable quantity of water is to be raised.

Fig. 713 is the same Pump, arranged with air chamber instead of check valve, and we recommend this form where water is to be lifted any distance above Pump.

We can also furnish our Double-Acting Pumps, like **Fig. 272,** page 78, mounted in the same way, if desired. We give lists on both kinds of Pumps below.

In ordering, always state whether you want a Single or Double-Acting Pump.

We can construct these Pumps of brass, if so ordered — also add a cock to the air chamber — at proportionate advance in list. Stroke, both Pumps, 7 inches.

FIG. 712. Sizes, Prices, Etc.

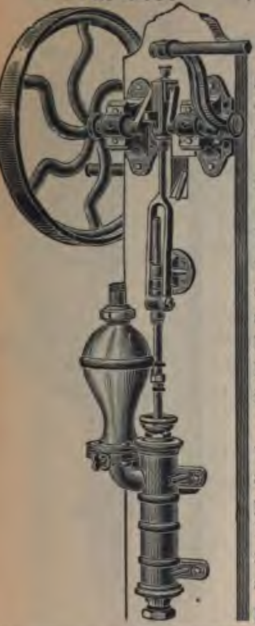
No.	Dia. Cyl.	Suc. and Dis.	SINGLE-ACTING PUMP.			DOUBLE-ACTING PUMP.		
			Gal. per Stk	Cipher.	Price.	Gal. per Rev.	Cipher.	Price.
2	2½ in.	1¼ in.	1-7	Tabor	$27.00	2-7	Talon	$29.00
3	2¾ "	1¼ "	1-6	Tack	29.00	1-3	Tame	33.00
4	3 "	1¼ "	1-5	Tag	32.00	2-5	Tank	36.50
5	3¼ "	1½ "	1-4	Tail	35.00	. . . .	. . .	. . .
6	3½ "	1½ or 2	3-10	Tally	39.00	3-5	Tansy	43.00

FIG. 713. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc and Dis.	SINGLE-ACTING PUMP.			DOUBLE-ACTING PUMP.		
			Gal. per Stk	Cipher.	Price.	Gal. per Rev.	Cipher.	Price.
2	2½ in.	1¼ in.	1-7	Tare	$29.00	2-7	Team	$31.50
3	2¾ "	1¼ "	1-6	Tart	31.00	1-3	Tear	34.00
4	3 "	1¼ "	1-5	Task	34.50	2-5	Tenor	38.50
5	3¼ "	1½ "	1-4	Tax	38.00	. . . .	. . .	. . .
6	3½ "	2 "	3-10	Tea	42.00	3-5	Tent	46.00

GOULDS SUCTION AND FORCE PUMPS.

FIG. 449.



WITH FLY WHEEL AND CRANK SHAFT.

FIG. 466.

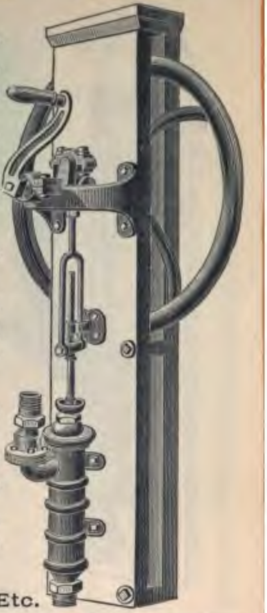


Fig. 449 represents our Single-Acting Force Pump, mounted on plank, with balance wheel and steel crank shaft.

The Pump is so constructed that two or four men can work it.

Fig. 466 represents same Pump mounted on double plank, with heavy fly wheel, crank shaft, etc. It is strong, compact, and well built in every part, and by means of the extra large and heavy fly wheel the usual labor is much decreased.

We deduct $9.00 from list when ordered without fly wheel, and same when ordered without plank. We can also arrange our Double-Acting Pumps, **Fig. 271** (page 78) in same manner and give prices on both.

FIG. 449. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Stroke.	Gal. per Stroke.	IRON.		BRASS.	
					Cipher.	Price.	Cipher.	Price.
0	2 in.	1¼ in.	7 in.	1-10	Frith	$37.00	Frost	$47.00
2	2½ "	1¼ "	7 "	1-7	Friz	39.00	Froth	48.00
3	2¾ "	1¼ "	7 "	1-6	Frock	39.50	Frown	50.00
4	3 "	1¼ "	7 "	1-5	Frog	40.00	Frowzy	60.00
5	3¼ "	1½ "	7 "	1-4	From	44.00	Fruit	72.00
6	3½ "	1½ or 2	7 "	3-10	Front	48.00	Fry	85.00

FIG. 466. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Stroke.	SINGLE-ACTING PUMP.			DOUBLE-ACTING PUMP.		
				Gal.Str.	Cipher.	Price.	Gal.rev.	Cipher.	Price.
2	2½ in.	1¼ in.	6½ in.	1-8	Glean	$48.00	2-7	Warily	$50.50
3	2¾ "	1¼ "	6½ "	1-6	Glee	50.00	1-3	Wariment	53.00
.	3 "	1¼ "	6½ "	1-5	Glen	55.00	2-5	Warine	59.00
	3¼ "	1½ "	6½ "	1-4	Glib	62.00	. .	. . .	. . .
	1½ "	2 "	6½ "	3-10	Glide	66.00	3-5	Wariness	70.00

GOULDS LARGE SUCTION AND FORCE PUMPS.

FIG. 278. FOR MANUAL OR OTHER POWER. **FIG. 279.**

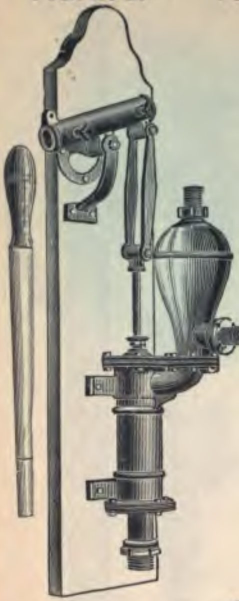


Fig. 278 gives a good representation of a new pattern of iron Force Pump, mounted on plank, for hand use. It is extra strong and heavy, fitted with leather valves and packings, and has no equal for forcing water into railroad station tanks, tubs in distilleries, breweries, etc., where one man's power is to be exerted.

Fig. 279 differs but slightly in construction from Pump on previous page, having the pitman forged with a stub end for connecting to face plate above.

For pumping hot liquids we fit them with metallic valves and packings.

See our remarks on page 6 in relation to pumping hot water.

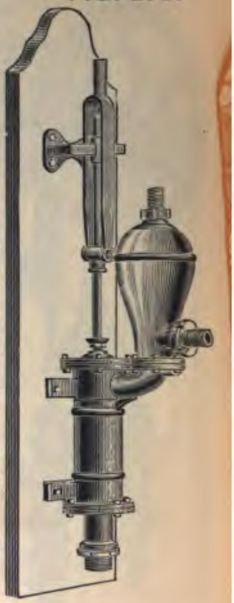


FIG. 278. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Stroke.	Gal. per Stroke.	IRON.		BRASS.	
					Cipher.	Price.	Cipher.	Price.
8	4 in.	2 in.	8 in.	3-7	Cynic	$30.00	Dace	$86.00
12	5 "	2½ "	10 "	7-8	Dab	40.00	Daft	126.00
16	6 "	3 "	10 "	1 1-4	Czar	55.00	Dado	150.00

FIG. 279. Sizes, Prices, Etc.

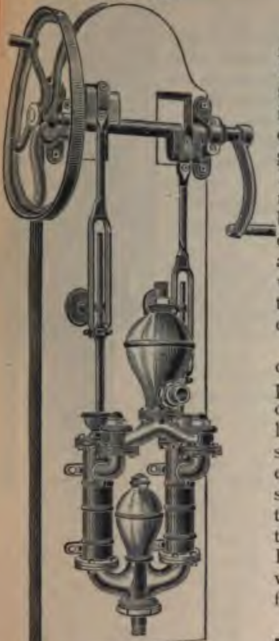
No.	Dia. Cyl.	Suc. and Dis.	Stroke.	Gal. per Stroke.	IRON.		BRASS.	
					Cipher.	Price.	Cipher.	Price.
8	4 in.	2 in.	8 in.	3-7	Daily	$30.00	Dale	$86.00
12	5 "	2½ "	10 "	7-8	Daisy	40.00	Dame	126.00
16	6 "	3 "	10 "	1 1-4	Dairy	55.00	Dam	150.00

Fitted with metallic valves and plungers for pumping hot water, add to list $10.00
We can fit up these Pumps with cocks if so desired.

GOULDS TWO-CYLINDER SUCTION AND FORCE PUMPS.

WITH AIR AND VACUUM CHAMBERS, MOUNTED ON PLANK, WITH PITMANS, GUIDE RODS, ETC.

FIG. 469.



These Pumps are a combination of two Single-Acting Pumps, joined at top and bottom by flange joints, with one induction and two eduction openings. This arrangement gives a perfect and complete Double-Acting Pump of the most approved type, which will be found to be very useful in distilleries, mills, factories, or at railroad stations, for forcing water by hand power into tanks, tubs, etc., placed any reasonable distance above the Pump.

Underneath the vacuum chamber is a check valve, which prevents the water from getting out of the Pump, keeping the lower valves submerged constantly. In **Fig. 468** the levers are wrought-iron and very strong, and long enough for two or four men to work on them. **Fig. 469** is the same Pump mounted on a framework of similar character, with fly wheel, winch handle, etc.

FIG. 468.

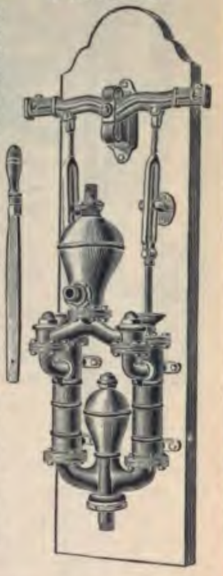


FIG. 468. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Stroke.	Gal. per Rev.	IRON.		BRASS.	
					Cipher.	Price.	Cipher.	Price.
2	2½ in.	1½ in.	7 in	2-7	Glum	$37.50	Gnaw	$52.00
4	3 "	2 "	7 "	2-5	Glut	50.00	Gnu	84.00
8	4 "	2½ "	8 "	4-5	Gnat	70.00	Gold	128.00

FIG. 469. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Stroke.	Gal. per Rev.	IRON.		BRASS.	
					Cipher.	Price	Cipher.	Price.
2	2½ in.	1½ in.	7 in.	2-7	Gone	$60.00	Gore	$75.00
4	3 "	2 "	7 "	2-5	Gong	75.00	Gorge	110.00
8	4 "	2½ "	8 "	4-5	Good	100.00	Gout	150.00

DOUBLE-ACTING FORCE PUMPS.

FIG. 271.

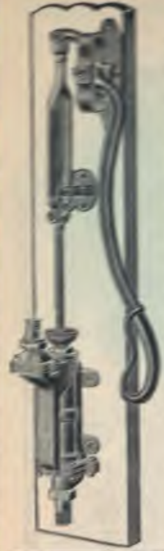


Fig. 271 represents one of our well-known Double-Acting Force Pumps, mounted on plank, with brass piston rod, for house use.

In explanation of a Double-Acting Pump would say that they lift and force water with both the upward and downward motions of the lever, giving double the quantity of water that a Single-Acting Pump of equal size would.

Fig. 272 represents our Double-Acting Force Pump, mounted on plank, with air chamber.

For heavy lifts above the Pump, we should always urge the use of a Pump with air chamber, as a more uniform stream will be secured with this addition.

Suction and discharge always fitted for wrought-iron pipe, although either or both of these can be fitted for lead pipe if so ordered.

Deduct $1.00 from lists given below when not mounted on planks.

We can fit these and other Pumps of this class for hot water, with brass upper and lower valves, at extra *net prices*.

FIG. 272.

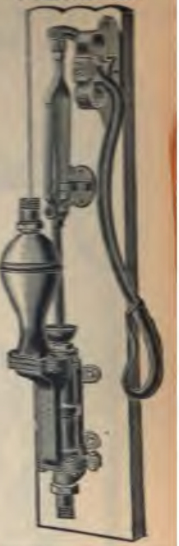


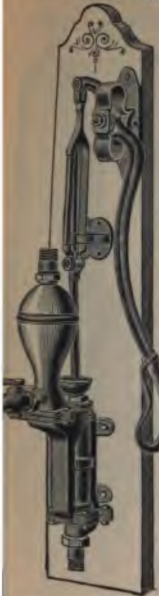
FIG. 271. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Dis.	Stroke.	Gal. per Rev.	IRON.		BRASS.	
						Cipher.	Price.	Cipher.	Price.
0	2 in.	1¼ in.	1¼ in.	7 in.	1-5	Clump	$13.50	Comb	$26.00
1	2¼ "	1¼ "	1¼ "	7 "	1-4	Coach	14.00	Come	28.00
2	2½ "	1¼ "	1¼ "	7 "	2-7	Coast	17.00	Cord	38.00
3	2¾ "	1¼ "	1¼ "	7 "	1-3	Coat	19.00	Cork	45.00
4	3 "	1½ "	1¼ "	7 "	2-5	Coax	21.00	Corn	52.00
6	3½ "	1½ "	1½ "	8 "	2-3	Code	25.00	Couch	69.50
8	4 "	2 "	2 "	8 "	4-5	Coil	37.00	Court	94.00
10	4½ "	2½ "	2½ "	8 "	1	Coin	50.00	Crack	136.00

FIG. 272. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Dis.	Stroke.	Gal. per Rev.	IRON.		BRASS.	
						Cipher.	Price.	Cipher.	Price.
0	2 in.	1¼ in.	1¼ in.	7 in.	1-5	Crank	$15.50	Cube	$28.00
1	2¼ "	1¼ "	1¼ "	7 "	1-4	Crest	16.00	Cubeb	30.00
2	2½ "	1¼ "	1¼ "	7 "	2-7	Crop	19.50	Cubic	40.00
3	2¾ "	1¼ "	1¼ "	7 "	1-3	Cross	21.00	Cubit	47.00
4	3 "	1½ "	1¼ "	7 "	2-5	Crowd	23.00	Cue	54.00
6	3½ "	1½ "	1½ "	8 "	2-3	Crown	28.50	Cuff	73.00
8	4 "	2 "	2 "	8 "	4-5	Crude	42.00	Cull	98.00
10	4½ "	2½ "	2½ "	8 "	1	Crush	55.00	Cup	141.00

FIG. 273.



GOULDS DOUBLE-ACTING SUCTION AND FORCE PUMPS.

MOUNTED ON PLANK.

FIG. 450.

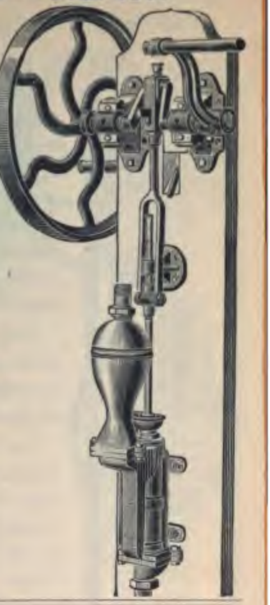


Fig. 273 represents our Double-Acting Force Pump, delineated on the previous pages, arranged with a cock at side of air chamber.

This Pump combines all the advantages of the others, and in addition is provided with an outlet (by means of cock) at the point of operation.

Fig. 450 represents our Double-Acting Force Pump, mounted on plank, with balance wheel, steel crank shaft and winch handles, built in a most thorough and workmanlike manner. The Pump is so constructed that two or four men can work it.

When so ordered we can put on a larger balance wheel with 3½ in. face, 24 in. diameter, on to which a belt could be run, at $3.00 extra list. Fitted for wrought-iron pipe unless otherwise ordered.

FIG. 273. Sizes, Prices, Etc.

o.	Dia. Cyl.	Suc.	Dis.	Stroke.	Gal. per Rev.	IRON.		BRASS.	
						Cipher.	Price.	Cipher.	Price.
	2 in.	1¼ in.	1¼ in.	7 in.	1-5	Verdict	$18.00	Verified	$33.00
	2¼ "	1¼ "	1¼ "	7 "	1-4	Verdigris	18.50	Verifier	35.00
	2½ "	1¼ "	1¼ "	7 "	2-7	Verditer	22.00	Verify	45.00
	2¾ "	1¼ "	1¼ "	7 "	1-3	Verdure	23.50	Verily	52.00
	3 "	1½ "	1¼ "	7 "	2-5	Verecund	25.50	Verity	59.00
	3½ "	1½ "	1½ "	8 "	2-3	Verge	31.00	Verjuice	78.00
	4 "	2 "	2 "	8 "	4-5	Verger	45.00	Vermes	103.00
	4½ "	2½ "	2½ "	8 "	1	Verging	58.00	Vermilion	146.00

FIG. 450. Sizes, Prices, Etc.

o.	Dia. Cyl.	Suc.	Dis.	Stroke.	Gal. per Rev.	IRON.		BRASS.	
						Cipher.	Price.	Cipher.	Price.
2	2½ in.	1¼ in.	1¼ in.	7 in.	2-7	Full	$40.00	Furry	$61.00
3	2¾ "	1¼ "	1¼ "	7 "	1-3	Fume	42.00	Furl	68.00
4	3 "	1½ "	1¼ "	7 "	2-5	Fun	45.00	Fury	75.00
6	3½ "	1½ "	1½ "	7½ "	3-5	Fund	55.00	Furze	94.00
8	4 "	2 "	2 "	7½ "	4-5	Fur	65.00	Fuse	119.00
0	4½ "	2½ "	2½ "	7½ "	1	Furs	80.00	Furzy	135.00

GOULDS DOUBLE-ACTING SUCTION AND FORCE PUMPS.

FOR MANUAL OR OTHER POWER.

FIG. 876.

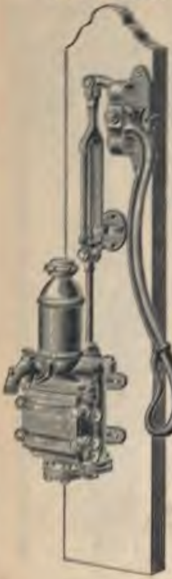


Fig. 876 represents our new style Double-Acting Force Pump, with pitman, guide, guide rod, etc , mounted on plank for house use. As the cut indicates, the Pump is strongly and compactly built, the valves all being under one case in front with suction pipe underneath. These valves are made of bronze, rubber faced, and can confidently say our Pump is vastly more reliable and efficient than any other Pump of its class in the market.

Fig. 879 represents the same Pump, less lever and bearer, but with pitman and guide arranged for machine power, and we offer it in place of our old **Fig. 452**.

An admirable feature of both of these Pumps is suction pipe plate underneath valve box admitting Pump, being readily fitted or changed for any size of pipe other than given in our table below, if so ordered or desired. Plugs are provided for emptying Pump in cold weather.

FIG. 879.

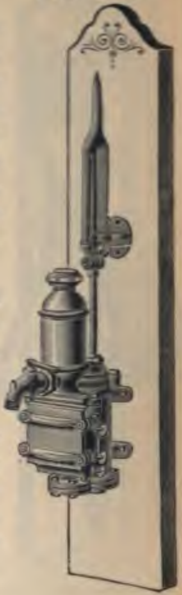


FIG. 876. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Stroke.	Capacity per Rev.	Cipher.	Price.
2	2½ in.	1¼ in.	6 in.	1-4 gal.	Waveless	$29.00
4	3 "	1¼ "	6 "	1-3 "	Wavelet	34.00
6	3½ "	1½ "	6 "	1-2 "	Wavelike	41.50
8	4 "	2 "	6 "	5-8 "	Waver	49.00

FIG. 879. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Stroke.	Capacity per Rev.	Cipher.	Price.
2	2½ in.	1¼ in.	6 in.	1-4 gal.	Waverer	$29.00
4	3 "	1¼ "	6 "	1-3 "	Wavering	34.00
6	3½ "	1½ "	6 "	1-2 "	Waveson	41.50
8	4 "	2 "	6 "	5-8 "	Waveworn	49.00

When cocks are not furnished we deduct $2.00 from list prices.

GOULDS DOUBLE-ACTING SUCTION AND FORCE PUMPS.

FIG. 875.

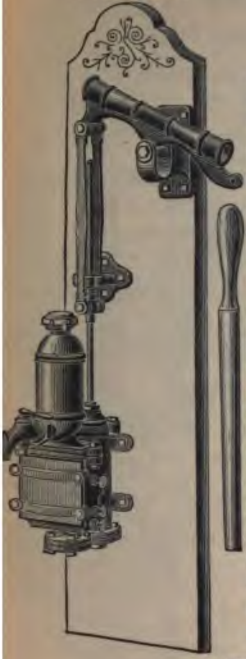
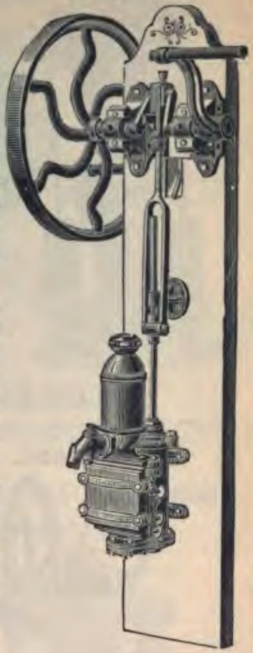


FIG. 877.



MOUNTED ON PLANK FOR MANUAL POWER.

Fig. 875 represents our new style Double-Acting Force Pump, arranged with wood lever for hand power, which we have designed to supplant our old **Fig. 451,** believing it possesses certain features which especially adapt it to the requirements of a power Pump designed for heavy work.

Fig. 877 represents the same Pump mounted on heavy plank with crank shaft, stub ends and keys, plumber blocks, winch handle and fly wheel, arranged for two or four men and capable of lifting or forcing large quantities of water. We also substitute for either fly wheel or handle a pulley 3½ in. face 24 in. dia. for belt connection at $3.00 extra list. Always fitted as below unless otherwise ordered.

FIG. 875. Sizes, Prices, Etc.

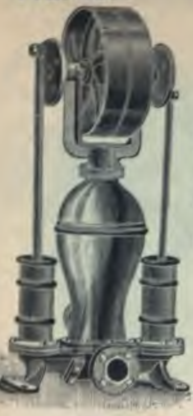
No.	Dia. Cyl.	Suc. and Dis.	Stroke.	Cap. per Rev.	Cipher.	Price.
2	2½ in.	1¼ in.	6 in.	1-4 gal.	Waving	$29.00
4	3 "	1¼ "	6 "	1-3 "	Wavy	34.00
6	3½ "	1½ "	6 "	1-2 "	Waive	41.50
8	4 "	2 "	6 "	5-8 "	Wax	49.00

FIG. 877. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Stroke.	Cap. per Rev.	Cipher.	Price.
2	2½ in.	1¼ in.	6 in.	1-4 gal.	Waxcloth	$50.00
4	3 "	1¼ "	6 "	1-3 "	Waxen	55.00
6	3½ "	1½ "	6 "	1-2 "	Waxiness	68.00
8	4 "	2 "	6 "	5-8 "	Waxing	80.00

We deduct $2.00 from lists when cock is not furnished.

FIG. 457.



GOULDS TWO CYLINDER SUCTION AND FORCE PUMP.

WITH TIGHT AND LOOSE PULLEYS

Fig. 457 shows our Open Top Two Cylinder Force Pump, described on page 132, with tight and loose pulleys, face plate, wrist pin, etc., for belt power. The Pump is Double-Acting in operation, and by its construction the bearing boxes provide equal support on each side of pulleys.

Suction and discharge fitted for either hose or wrought-iron pipe, as ordered. Stroke, 8 inches.

FIG. 457. Sizes, Prizes, Etc.

No.	Dia. Cyl.	Suc.	Dis.	Gal. per Rev.	IRON CYLS.		BRASS CYLS.	
					Cipher.	Price.	Cipher.	Price.
8	4 in.	2½ in.	2 in.	4-5	Gimp	$90.00	Live	$105.00
12	5 "	2½ "	2 "	1 1-3	Gipsy	105.00	Loaf	130.00

GOULDS SUCTION AND FORCE PUMP.

MOUNTED ON WOOD FRAME, WITH HEAVY FLY WHEEL AND CRANK SHAFT.

FIG. 655.

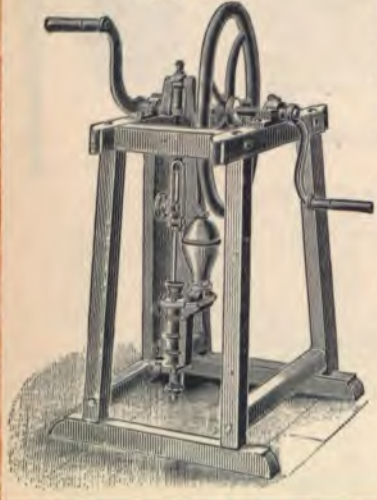


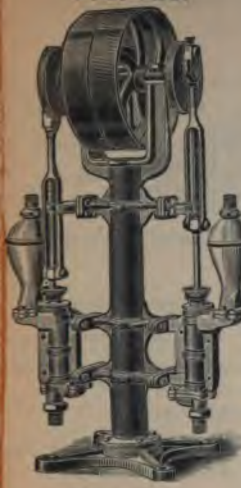
Fig. 655 is the same size and capacity as our **Fig. 272,** shown on page 78, and an appliance very often desired for filling tanks, reservoirs, etc. From two to four men can work on the Pump. When parties desire to make the wood frames themselves, we will furnish the Pump, fly wheel, shaft, boxes, etc., at a reduction in list price.

Below we give prices arranged as shown in cut, and also with our Single-Acting Pump, **Fig. 441,** described on page 70.

FIG. 655. (Regard.) **Sizes, Prices, Etc.**

No.	Dia. Cyl.	Suc. and Dis.	SINGLE-ACTING PUMP.		DOUBLE-ACTING PUMP.	
			Iron.	Brass.	Iron.	Brass.
1	2¼ in	1¼ in	. . .	. . .	$56.00	$68.00
2	2½ "	1¼ "	$56.00	$67.00	57.00	72.00
3	2¾ "	1¼ "	57 00	72.00	58.50	77.50
4	3 "	1¼ "	62.50	77.50	63.00	83.00
5	3¼ "	1½ "	62.50	82.50	. . .	. . .
6	3½ "	1½ "	68.00	103.00	74.00	114.00
8	4 "	2 "	79.00	119.00	95.00	119.00
10	4½ "	2½ "	95.00	155.00	96.00	185.00
12	5 "	2½ "	115.00	175.00	. . .	. . .

FIG. 523.



GOULDS DOUBLE-ACTING SUCTION AND FORCE PUMP.

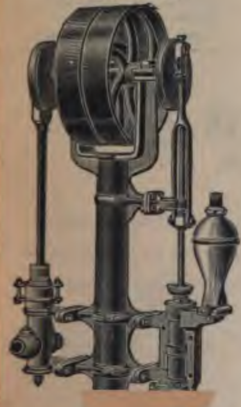
ON COLUMN, WITH TIGHT AND LOOSE PULLEYS.

Fig. 523 represents a combination of two of our Double-Acting Force Pumps same as described on page 78, and bolted to a heavy column, with tight and loose pulleys, face plate, wrist pin, etc. These pumps should always have a rigid support, and we offer a complete and suitable outfit under this head. Either one or two Pumps can be supplied and give prices below on each form. Fitted for wrought-iron pipe unless otherwise ordered.

FIG. 523. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	SINGLE PUMP.		DOUBLE PUMP.	
			Cipher.	Price.	Cipher.	Price.
2	2½ in.	1¼ in.	Dense	$ 75 00	Idol	$ 95.00
4	3 "	1½ "	Deny	85.00	Ire	110.00
6	3½ "	1½ "	Depot	100.00	Iron	140.00
8	4 "	2 "	Depth	120.00	Isle	175.00
10	4½ "	2½ "	Dern	140.00	Item	205.00

FIG. 288.



GOULDS DOUBLE-ACTING FORCE PUMP AND BOILER FEED PUMP.

ON COLUMN.

This design represents a Double-Acting Suction and Force Pump, and Boiler Feed Pump, bolted to a heavy iron column or standard, surmounted with tight and loose pulleys for power. This combination can be used where it is desired to pump water from pit or well to supply tank and then force into boiler, or for independent purposes.

FIG. 288. Sizes, Prices, Etc.

BOILER PUMP.			DOUBLE-ACT. FORCE PUMP.			COMPLETE.	
Dia. Cyl.	Suc. and Dis.	Gal. per Stroke.	Dia. Cyl.	Suc. and Dis.	Gal. per Rev.	Cipher.	Price.
2½ in.	1¼ in.	1-8	3 in.	1½ in.	2-5	Dice	$130
2½ "	1¼ "	1-8	4 "	2 "	4-5	Didst	165

For Force Pumps without A. C., deduct $5.00 from lists.

GOULDS COUNTER SHAFT AND FACE PLATE.

FOR WORKING PUMPS.

FIG. 711.

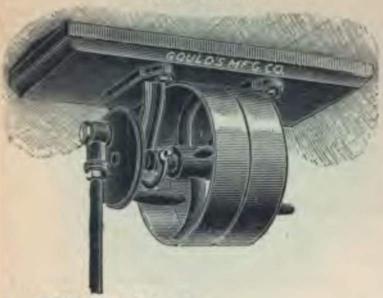

GOULD'S MF'G. CO.

Fig. 711 represents a light counter shaf consisting of tight and loose pulleys, fac plate, wrist pin and rod, bearing supports, boxes, etc., and is intended for driving any of our smaller Power Pumps, such as **Figs. 714, 279, 879,** etc., as shown in our illustration.

Can change sizes of pulleys enumerated in our tables to meet requirements of customers, at proportionate prices.

FIG. 711 1-2.

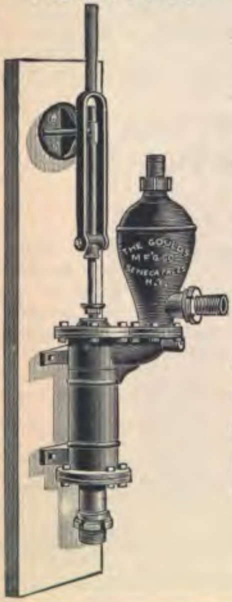


FIG. 711. Sizes, Prices, Etc.

No.	Dia. of Pulleys.	Face of Pulleys.	Cipher.	Price.
1	16 in.	3½ in.	Syrup	$30.00
2	18 "	4 "	Sythe	35.00
3	22 "	5 "	Table	45.00

GOULDS PLAN OF COUNTER SHAFT AND FORCE PUMP.

Our illustration also suggests a practical method of connecting any desired suitable Pump to the wrist pin of face plate of our **Fig. 711** countershaft. The price, of course, depends on the kind and size of Pump used, size of pulleys, and length of connecting rod, which should be of 1 in. to 1¼ in. in diameter.

Estimates made on application.

GOULDS OVERHEAD COUNTER SHAFT.

WITH FACE PLATE, PULLEYS, PIN, ETC., BACK GEARED.

FIG. 650.

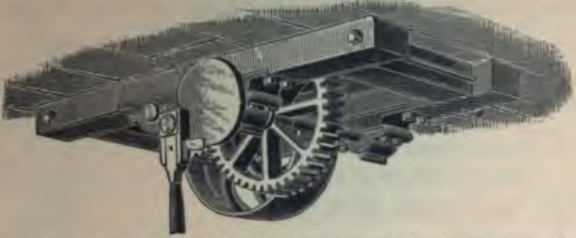


Fig. 650, as shown, is intended for driving any of the larger sizes of our Vertical Power Piston Pumps, such as **Figs. 279, 452, 339, 283, 683,** etc., when located directly underneath it.

The table below shows sizes of tight and loose pulleys supplied as per prices, but either or both can be changed to suit special requirements. Price accordingly.

Size of Pump, duty, etc., *should* determine speed; hence, full information is necessary when ordering or desiring to consult.

No. 2 has heavy oak frame for bed plate, with wrought-iron stay-rods.

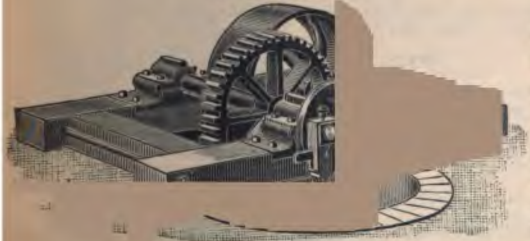
FIG. 650. Sizes, Prices, Etc.

No.	Dia. Large Gear.	Dia. Small Gear.	Face of Gear.	Pulleys.	Cipher.	Price.
1	12 in.	4 in.	2½ in.	16 x 4 in.	Beat	$ 50.00
2	22 "	7¾ "	3½ "	22 x 5½ "	Beef	125.00

GOULDS STRONG WOODEN FRAME AND GEARING.

FOR DEEP WELL PUMPS.

FIG. 650.



Cut shows Goulds Strong Wooden Horizontal Frame, with spur gear, pinion, counter shaft, plummer blocks, turned fast and loose rigger or pulley, face plate, with pin for varying stroke, connecting rod, strap head and sling for placing in part over a well or shaft or just at the edge, with face plate only projecting, for working single or double-acting pumps, to be driven b belt from Steam Engine o other power. Prices same as given above.

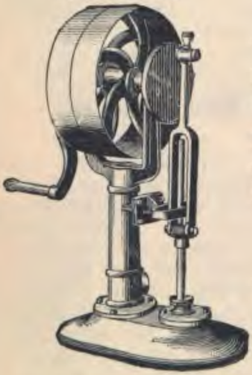
GOULDS DEEP WELL PUMPING APPARATUS.

Between this and page 113 will be found our several styles of pumping apparatus, including Pump Standards, Frames, Working Heads and Pump Barrels or Cylinders, Horse Powers and plans showing several outfits in wells. We would refer to our general remarks on pages 29 and 30, and the following data should always accompany applications for estimates or for advice as to proper Pump to use for a given situation:

1. Depth of well or shaft.
2. Diameter of well or shaft.
3. Depth of water therein.
4. Quantity of water per hour required.
5. Height water is to be delivered above ground level or where well frame is placed.

GOULDS COMBINED MANUAL AND POWER PUMPING APPARATUS.

FIG. 872.



This consists of iron bed with vertical column supporting shaft with tight and loose pulleys, crank handles, face plate, pitman connecting rod (working through usual stuffing-box) for welding to rod which extends below inside the pipe down to the pump in the well. Can be worked by manual or other power supplied from steam, gas or petroleum, by belt if rate of speed is not too high.

FIG. 872. Sizes, Prices, etc.

No.	Pipe.	Dis.	Stroke.	Pulleys Each.	Cipher.	Price.
1	1½ in.	1¼ in.	4, 5 or 6 in.	15 x 3 in.	Waxlight.	$25.00

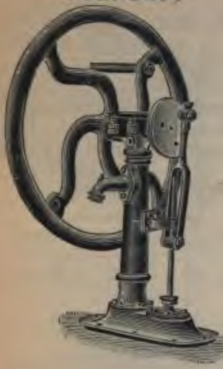
CYLINDERS.

We recommend for use with above our Deep Well Cylinders. **Figs. 613** or **548,** *pages 201 to 205;* **Fig. 514,** page 61; or **Fig. 526,** page 96.

GOULDS MANUAL ROTARY PUMPING APPARATUS.

FOR WORKING PUMPS BELOW GROUND.

FIG. 547.



The reciprocating mechanism, consisting of wrought-iron shaft, with round rim fly wheel affixed, face plate, steel wrist pin, heavy forged pitman, guided connecting rod passing through a stuffing box in bed plate and down inside the pipe connecting with Pump below, is rigidly bolted at all points to the strong iron column, thus producing a very effective and simple apparatus for raising water from wells with single Pump 5 to 7 inch stroke. As shown, water is discharged through spout, but by substituting a flange for spout it can be piped to convey the water any distance.

FIG. 547. Size, Price, Etc.

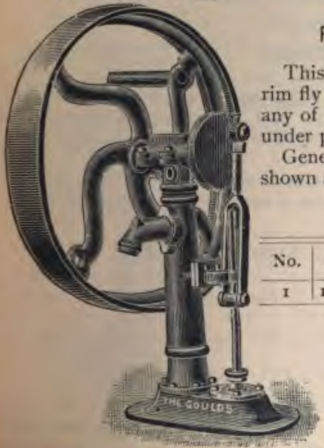
No.	Pipe.	Stroke.	Dia. Fly Wheel.	Cipher.	Price.
1	1½ in.	5, 6 or 7 in.	36 in.	Lamp	$39.00

CYLINDERS.

We recommend for use with above, our Deep Well Cylinders, **Figs. 613** or **548,** pages 201 to 205; **Fig. 514,** page 61; or **Fig. 526,** page 96.

GOULDS COMBINED MANUAL AND POWER PUMPING APPARATUS.

FIG. 547 1-2.



FOR WORKING PUMPS BELOW GROUND.

This standard is a modification of **Fig. 547** with a flat rim fly wheel worked by manual or belt transmission from any of the numerous and well known steam or gas engines, under proper speed conditions.

General construction and application same as **Fig. 547,** shown above.

FIG. 547 1-2. Size, Price, Etc.

No.	Pipe.	Stroke.	Pulley Fly Wheel.	Cipher.	Price.
1	1½ in.	5, 6 or 7 in.	36 x 4½ in	Lane	$41.00

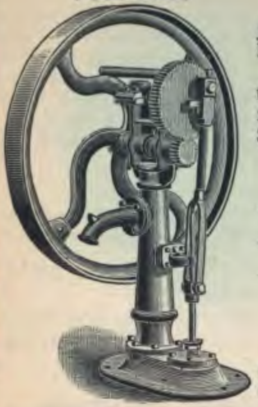
CYLINDERS.

We recommend for use with above our Deep Well Cylinders, **Fig. 613** or **548,** pages 201 to 205 **Fig. 514,** page 61; or **Fig. 526,** page 96.

GOULDS COMBINED MANUAL AND POWER PUMPING APPARATUS.

WITH GEAR AND PINION.

FIG. 595.



This construction (quite similar in other respects to **Fig. 547½**, shown on previous page) is capable of handling larger pumps, as it is geared back three to one.

The main gear and pinion are best steel with machine cut teeth, well fitted, bright finished and work with minimum friction. For driving single pumps it is unsurpassed. Gas, Steam, Petroleum or Electric Motors may be used with it.

FIG. 595. Sizes, Prices, Etc.

No.	Pipe.	Stroke.	Fly Wheel.	Cipher.	Price.
1	1½ in.	7 in.	36 x 4½ in.	Mink	$65.00

CYLINDERS.

We recommend for use with above our Deep Well Cylinders **Figs. 613** or **548**, pages 201 to 205; **Fig. 514**, page 61; or **Fig. 526**, page 96.

GOULDS COMBINED MANUAL AND POWER PUMPING APPARATUS.

WITH GEAR AND PINION.

FIG. 888.

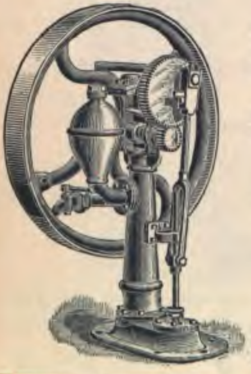


Fig. 888 is same as **Fig. 595** in all details except it is provided with air chamber and cock spout. Water can be forced upward through top of air chamber or drawn through the cock.

The whole has high class finish and superior workmanship. Deduct $2.00 from prices given below when cock is not furnished.

FIG. 888. Size, Price, Etc.

No.	Pipe.	Stroke.	Fly Wheel.	Cipher.	Price.
1	1½ in.	7 in.	36 x 4½ in.	Vexil	$70.00

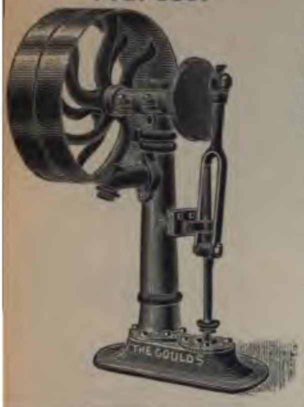
CYLINDERS.

We recommend for use with above, our Deep Well Cylinders **Figs. 613** or **548**, pages 201 to 205; **Fig. 514**, page 61; or **Fig. 526**, page 96.

GOULDS POWER PUMPING APPARATUS.

FOR WORKING PUMPS IN WELLS.

FIG. 889.



Under **Fig. 547,** page 87, a description of this will be found in a general way. Its distinguishing feature is the tight and loose pulleys for belt transmission. In place of spout, an air chamber can be used like **Fig. 888,** page 88, or a gas pipe flange for lateral or vertical distribution of water.

FIG. 889. Size, Price, Etc.

No.	Pipe.	Stroke.	Pulleys, each.	Cipher.	Price.
1	1½ in.	5, 6 or 7 in	20 x 3 in.	Warper	$44.00

CYLINDERS.

We recommend for use with above our Deep Well Cylinders **Fig. 613** or **548,** pages 201 to 205; **Fig. 514,** page 61, or **Fig. 526,** page 96.

GOULDS POWER PUMPING APPARATUS.

WITH TIGHT AND LOOSE PULLEYS.

FIG. 589.

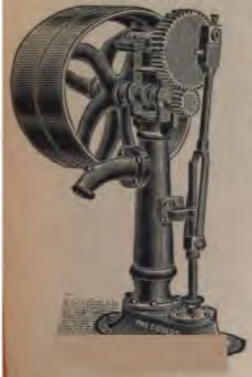


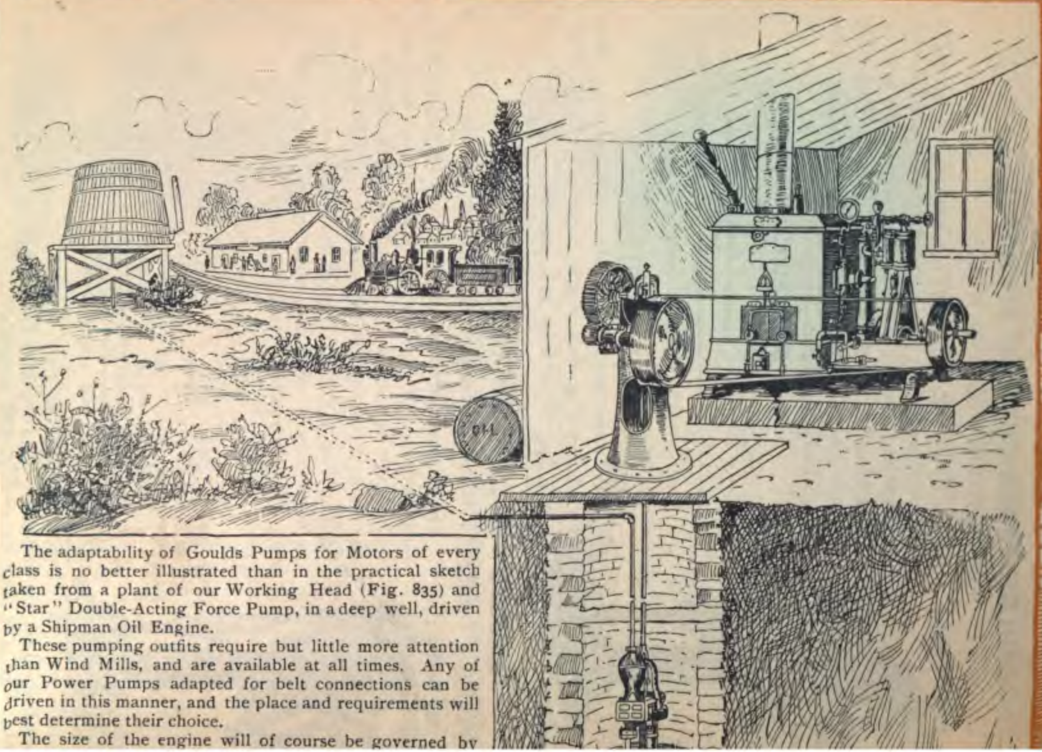
Fig. 589 is still another variation of our **Fig. 595,** page 88, for power only. The pinion shaft is made extra heavy and long enough to carry a tight and loose pulley, the size of which can be changed to any requirements. An outboard bearing is not essential for the ordinary range of service but in some cases it might be advantageous. Spout can be replaced with iron pipe flange if wanted.

FIG. 589. Sizes, Prices, Etc.

No.	Pipe.	Stroke.	Pulleys, each.	Cipher.	Price.
1	1½ in.	7 in.	20 x 3 in.	Warping	$68.00
2	Same as	above with	air chamber.	Warplume	71.00
3	Same as	above with and cock	air chamber spout.	Warproof	73.00

CYLINDERS.

We recommend *for use with above* our Deep Well Cylinders, **Fig. 613** or 548, pages *to 205;* ***Fig. 514,*** *page 61, or* **Fig. 526,** page 96.



The adaptability of Goulds Pumps for Motors of every class is no better illustrated than in the practical sketch taken from a plant of our Working Head (**Fig. 835**) and "Star" Double-Acting Force Pump, in a deep well, driven by a Shipman Oil Engine.

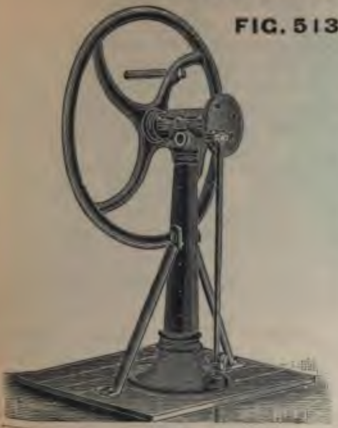
These pumping outfits require but little more attention than Wind Mills, and are available at all times. Any of our Power Pumps adapted for belt connections can be driven in this manner, and the place and requirements will best determine their choice.

The size of the engine will of course be governed by

GOULDS MANUAL PUMPING APPARATUS.

FOR OPERATING PUMPS IN DEEP WELLS.

FIG. 513.



The cut represents a very simple but substantial device for operating single-barrel cylinders in deep wells. The strong pillar column is double braced, while face plate is drilled to give five, six or eight-inch strokes as desired. Our Figs. **613, 514** or **526** cylinders may be used successfully with this head.

Provision should be made to give discharge pipe lateral outlet below ground.

FIG. 513. Price.

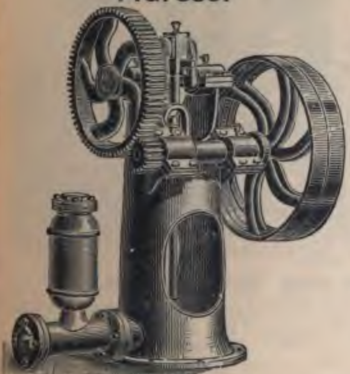
Standard complete, per cut (Wealsman), $50.00

See page 108 for illustrations of this apparatus as used over wells.

GOULDS BELT POWER PUMPING APPARATUS.

EXTRA STRONG AND GEARED.

FIG. 835.



This represents the *strongest* and *stiffest* of this type of Vertical Pumping Apparatus that we turn out. The upright sustains the gearing, single throw crank and pinion shaft, tight and loose pulleys, boxes, etc., etc., while the gear and pinion, 22 x 4 and 4 x 4 inches respectively, are keyed to the large wrought iron shaft, and the heavy pump-rod connected to crank bearings by means of strap head with composition box; the whole making a most desirable device for working a pump of the single or double acting species in open or artesian wells, mines, shafts, etc.

Belt power transmited by any of the usual motors (steam, gas or electric) is contemplated.

FIG. 835. Size, Price, Etc.

Stroke.	Suc. and Dis.	Pulleys Each.	Cipher.	Price
10 in. or less.	2½ in.	27 x 3 in.	Warrior	$175

Any of our Deep Well Cylinders **Figs. 613, 548, 514, 526 or 339** may be used

GOULDS TRIANGULAR WELL FRAME, GEARED.

FOR OPERATING SINGLE BARREL PUMPS IN DEEP WELLS.

FIG. 546.

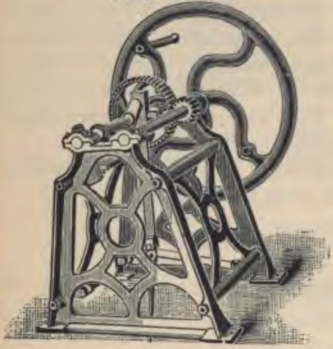


Fig. 546 represents our cast iron Well Frame, with fly wheel, gears, winch handle and wrought-iron vibrating levers, for working either single or double acting pump in deep wells. These frames can be used with either our **Figs. 339, 514, 526,** or **613.**

When so stipulated we can arrange with pulleys for attaching power. We also make them without gears at correspondingly less prices. Rods and guides furnished for wells of any depth. Stroke, 7 inches.

FIG. 546. Size, Price, Etc.

Size Frame.	Height.	Dia. Fly Wheel.	Cipher.	Price.
22 x 36 in.	34 in.	36 in.	Lame	$71.75

See page 111 for illustration of this Frame as used over wells.

GOULDS TRIANGULAR WELL FRAME, GEARED.

FOR OPERATING DOUBLE-BARREL PUMPS IN DEEP WELLS.

FIG. 545.

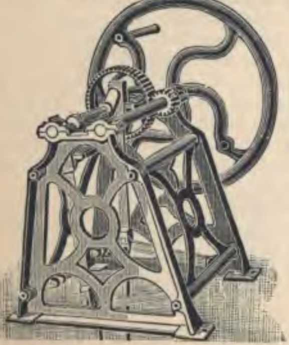


Fig 545 represents our cast-iron Well Frame, with fly wheel, gears, winch handle and wrought-iron vibrating levers, for working two single acting or one double acting Pump in deep wells. These frames can be used with either our **Figs. 283, 518,** or **527.**

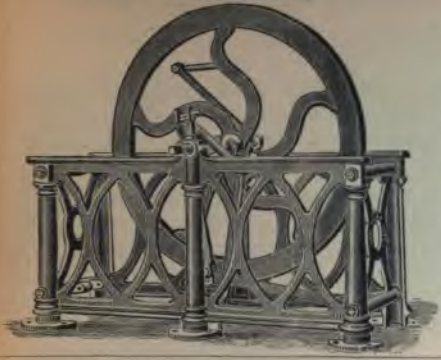
When so stipulated we can arrange with pulleys for attaching power. We also make them without gears at correspondingly less prices. Rods and guides furnished for wells of any depth. Stroke, 7 inches.

FIG. 545. Size, Price, Etc.

Size Frame.	Height.	Dia. Fly Wheel.	Cipher.	Price.
22 x 36 in.	34 in.	36 in.	Lamb	$81.50.

See page 110 for illustration of this Frame as used over wells.

FIG. 525.



GOULDS WELL FRAME.

FOR OPERATING PUMPS IN DEEP WELLS.

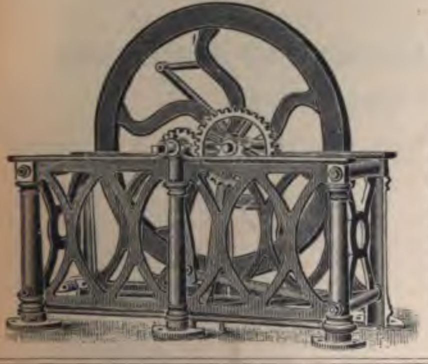
The cut represents our extra strong cast iron Well Frame with *cast steel crank shaft*, fly wheel, reversible vibrating rods, and wrought iron handle, with wrought iron revolving quill. The cast steel crank turns in *gun metal* boxes, which are held by gibs and keys. We construct them with single or double-throw crank, as ordered.

We can also put a pulley on crank shaft for running by power when ordered, in place of handle, at a suitable advance in price. See page 109 for illustration of this Frame as used over wells.

FIG. 525. **Size, Price, Etc.**

Stroke.	Size Frame.	Height.	Diameter Fly Wheel.	SINGLE THROW STEEL CRANK SHAFT.		DOUBLE THROW STEEL CRANK SHAFT.	
				Cipher.	Price.	Cipher.	Price.
10 in.	23 x 62 in.	31 in.	48 in.	Jane	$82.75	Jar	$92.50

FIG. 538.



GOULDS WELL FRAME.

FOR OPERATING PUMPS IN DEEP WELLS.

The cut represents our extra strong cast iron Well Frame with horizontal spur gear wheel and pinion, with power of two or three to one, as ordered, with *cast steel crank shaft*, fly wheel, reversible vibrating rods, and wrought iron handle, with wrought iron revolving quill. The cast steel crank turns in *gun metal* boxes, which are held by gibs and keys. We construct them with single or double-throw crank, as ordered.

FIG. 538. **Size, Price, Etc.**

Stroke.	Size Frame.	Height.	Diameter Fly Wheel.	SINGLE THROW STEEL CRANK SHAFT.		DOUBLE THROW STEEL CRANK SHAFT.	
				Cipher.	Price.	Cipher.	Price.
10 in.	23 x 62 in.	31 in.	48 in.	Lace	$92.50	Lack	$102.00

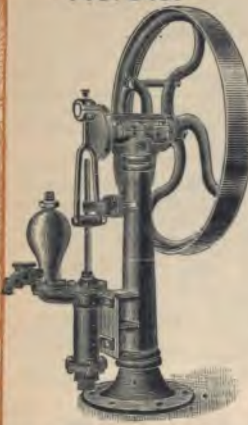
CYLINDERS.

We recommend the use of our **Figs. 339, 514, 526,** or **527** with these Frames.

GOULDS SINGLE-ACTING SUCTION AND FORCE PUMP.

ON COLUMN FOR MANUAL POWER.

FIG. 843.



This design is a combination of our strong Well Pump Standard or column and Single-Acting Force Pump, and can be used where water is not more than 25 feet below Pump.

It consists of heavy supporting column, fly wheel, shaft, face plate, wrist pin, pitman and guide, and pump with cock. When this cock is not furnished we deduct $2.00 from lists given below. Stroke 6 inches.

FIG. 843. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Gal. per Stroke.	Cipher.	Price.
2	2½ in.	1¼ in.	1-8	Waxmoth	$67.00
4	3 "	1¼ "	1-6	Waxpalm	70.00
6	3½ "	1½ "	1-4	Waxwing	75.00
8	4 "	2 "	1-3	Waxwork	82.50

GOULDS DOUBLE-ACTING SUCTION AND FORCE PUMP.

ON COLUMN FOR MANUAL POWER.

FIG. 844.

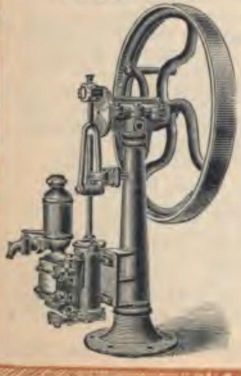


Fig. 844 is similar in appearance and construction to **Fig. 843** described above, except it has our new style Double-Acting Force Pump, same as described on page 80, in place of single acting one. Double acting pumps lift and force water with both the upward and downward stroke of piston, and for this reasonrequire heavy parts and support, which are provided in our design. Sizes of suction and discharge openings can be changed if desired, but always fit as below unless otherwise ordered. Deduct $2.00 from list when cock is not furnished. Stroke 6 inches.

FIG. 844. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Gal. per Rev.	Cipher.	Price.
2	2½ in.	1¼ in.	1-4	Waxy	$72.50
4	3 "	1¼ "	1-3	Way	78.00
6	3½ "	1½ "	1-2	Waybill	87.50
8	4 "	2 "	5-8	Waybread	100.00

GOULDS WELL PUMP HEAD.

746.

WITH PITMAN, GUIDE AND ROD.

Fig. 746 represents a Well Pump Head, with guide rod, etc., to be used in connection with **Fig. 743.** We can make them to work either 14, 16 or 18 inch stroke, as ordered. The lower end of the piston rod shows a thread cut on it for ¾ inch wrought-iron pipe, or we can make to weld on to a solid iron rod if so desired. The pitman can be fitted as shown in the cut, or with a forked rod to connect to wood rod of Wind Mill.

FIG. 746. Price.

Complete, as shown in cut, ...	(Validly), $25.00

GOULDS FLANGED DEEP WELL PUMP CYLINDER.

IC. 743.

ON BASE.

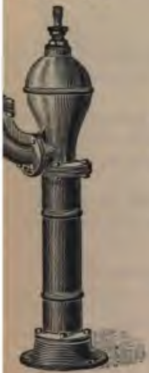


Fig. 743 shows a Flanged Deep Well Pump Cylinder surmounted with an air chamber. This Cylinder is made to work in either shallow or deep wells and is constructed of the very best materials. The discharge is at the side as shown in the cut. We make them iron or brass lined as per lists given below.

When ordered Brass Lined we put in a gun metal rod and brass lower valve.

FIG. 743. Sizes, Prices, Etc.

n.	Dia. Cyl.	Suc.	Dis.	Stroke.	Gal. per Stroke.	IRON.		BRASS LINED.	
						Cipher.	Price.	Cipher.	Price.
8	4 in.	2 in.	2 in.	14 in.	3-4	Valiant	$40.00	Valid	$48.00
6	6 in.	3 in.	3 in.	14 in.	1 7-10	Valiance	75.00	Validity	85.00

GOULDS SINGLE BARREL PUMP.

FOR DEEP WELLS.

Fig. 526 represents our superior Single Barrel Deep Well Pump in iron or with brass cylinders, as ordered, with doors at top and bottom for access to all valves. This Pump can be operated by any of the following Standards or Frames, to-wit: **Figs. 513, 547, 595, 546,** illustrated between pages 87 and 92, or with our Horse Gears, with single throw crank, similar to **Figs. 884** and **885,** pp. 105 and 106.

We strongly recommend the use of an air chamber with this Pump; also a check or foot valve with strainer at extremity of suction pipe.

Stroke, 10 inches. *Prices do not include air chamber.*

FIG. 526.

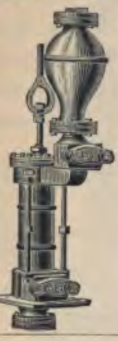


FIG. 526. Sizes, Prices, Etc.

Diameter Barrel.	Suc. and Dis.	Gal. per Stroke.	IRON BARRELS.		BRASS BARRELS.	
			Cipher.	Price.	Cipher.	Price.
2½ in.	1½ in.	1-5 gal.	Jaw	$34.00	Jib	$36.50
3 "	1½ "	3-10 "	Jay	36.50	Jig	41.50
3½ "	2 "	2-5 "	Jeer	41.50	Job	49.00
4 "	2 "	1-2 "	Jerk	49.00	Jog	58.00
5 "	2½ "	7-8 "	Jest	69.50	John	88.00
6 "	3 "	1 1-5 "	Jet	85.25	Join	113.00

GOULDS DOUBLE BARREL PUMP.

FOR DEEP WELLS.

FIG. 527.

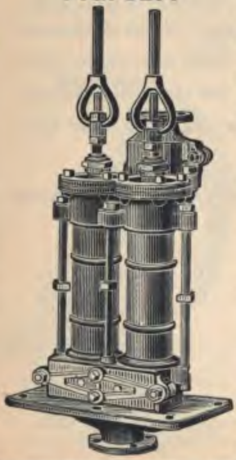


Fig. 527 represents our superior Double Barrel Deep Well Pump in iron or with brass cylinders, as ordered, with doors at top and bottom for access to all valves.

These double pumps can be used with any of our double throw well frames, as shown by **Figs. 716** and **718,** pages 109 and 110, or with our Horse Gears as shown by **Fig. 720,** page 113.

Neither of above Deep Well Pumps should be placed more than 20 feet above low water level, and the nearer water the better. Stroke, 10 inches.

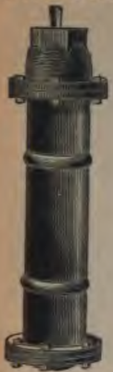
FIG. 527. Sizes, Prices, Etc.

Diam. Barrel.	Suc. and Dis.	Gal. per Rev.	IRON BARRELS.		BRASS BARRELS.	
			Cipher.	Price.	Cipher.	Price.
2½ in.	1½ in.	2-5 gal.	Joke	$50.00	July	$63.00
3 "	2 "	3-5 "	Jolt	56.00	Jump	73.00
3½ "	2½ "	4-5 "	Jot	66.00	June	85.00
4 "	2½ "	1 "	Jove	72.00	Junk	95.00
5 "	3 "	1 3-4 "	Joy	105.00	Jury	161.00
6 "	3½ "	2 2-5 "	Jug	146.00	Just	219.00

We refer to our **Fig. 531,** page 194, for prices of air chamber for above.

GOULDS HEAVY PUMP CYLINDER.

FIG. 618.



FOR DEEP WELLS.

Fig. 618 represents a large, strong, and heavy Cylinder, with bolted flange attachments for deep wells, where large quantities of water are to be raised.

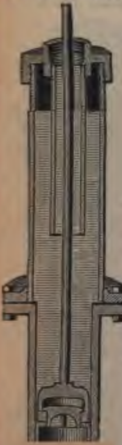
The plungers have extra long followers, preventing all rocking or binding and assisting its efficiency, and the whole is adequately strong for work intended, and can unhesitatingly recommend them.

They can be used in connection with our **Fig. 446** Working Head or any of our larger frames previously illustrated.

FIG. 618. Sizes, Prices, Etc.

Dia.	Length.	Suc. and Dis.	Stroke.	Gal. per Stroke.	Cipher.	Price.
4 in.	21 in.	2 in.	14 in.	3-4	Pure	$30.00
6 "	22 "	3 "	14 "	1 2-5	Purl	60.00
8 "	21 "	4 "	14 "	3	Purr	80.00
10 "	23 "	5 "	16 "	5 2-5	Push	100.00

FIG. 842.



GOULDS COMBINED PUMP CYLINDER AND AIR CHAMBER.

FOR DEEP WELLS.

Fig. 842 represents, in section, a new design of Deep Well Pump Cylinder, surmounted by a 4-foot wrought-iron pipe air chamber, which can be changed to any desired length. The body of Cylinder is of cast brass, with bolted flange attachment; the plunger is of same metal, while the lower valve is a special type of spring poppet valve, much superior to the ordinary leather valve. We believe this Cylinder possesses the best features of a large single-acting Cylinder, and shall be pleased to furnish estimates on other sizes than given in our table below.

FIG. 842. Sizes, Prices, Etc.

No.	Dia.	Length.	Suc. and Dis.	Stroke.	Gal. per Stroke.	Cipher.	Price.
12	5 in.	16 in.	2½ in.	10 in.	7-8	Warrant	$70.00

GOULDS CORNISH MINE PUMP HEAD.

FIG. 446.

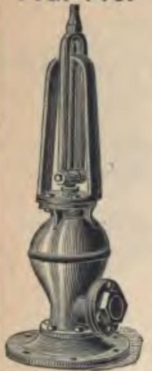


Fig. 446 shows a Working Head, provided with connecting rod, piston rod, stuffing box, guide, etc., to be used with the Cornish Cylinders shown below. This head is to be connected to the Cylinders by pipes and rods of sufficient length to reach to the bottom of the well or mine. We can furnish everything complete for wells of any depth.

Cut for sizes of pipe as ordered.

Can furnish this arranged for longer stroke up to 24 inch at corresponding price.

FIG. 446. Price.

Working Head, 14 inch stroke, (Four), ... $70.00

See page 107 for illustration of this Working Head and Cylinder given below, as used in deep wells.

GOULDS CORNISH MINE PUMPS.

FOR DEEP WELLS, MINES, AND QUARRIES.

FIG. 445.

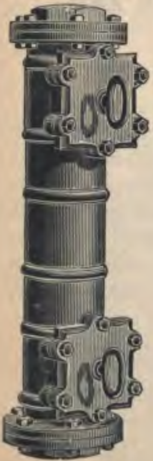


Fig. 445 shows the old Cornish Mine Pump Cylinder, so widely known to those engaged in the mining interest. Ours is provided at each extremity with a valve box and face plate, as shown in the cut, which has only to be removed to afford quick access to either the upper or lower valves for repairs. With only one valve box at the bottom of Cylinder, as is the case with most of them, the piston cannot be taken out and replaced where it is leather or rubber packed. We make these cylinders with either metallic pistons or packed with leather or rubber, as the case requires. Being placed at the very bottom of the mine, shaft, or well, the valves are always under the water and cannot fail to operate. The absence of suction pipe is a notable feature of this Pump.

FIG. 445.

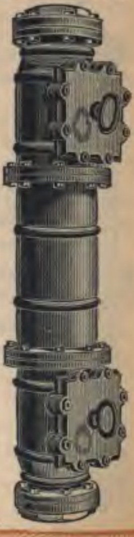
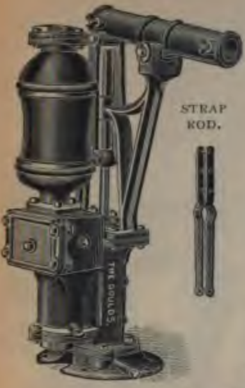


FIG. 445. Sizes, Prices, Etc.

Dia. Cyl.	Suc. and Dis.	Stroke.	Gal. per Stroke.	Cipher.	Price.
5 in.	3 in.	14 in.	1 1-5	Form	$60.00
6 "	3 or 4 "	14 "	1 7-10	Fort	75.00
8 "	4 or 5 "	16 "	3 1-2	Forth	100.00
8 "	4 or 5 "	18 "	4	Forty	110.00
10 "	5 or 6 "	15 "	5 1-10	Forum	125.00
10 "	5 or 6 "	18 "	6 1-8	Found	135.00
10 "	5 or 6 "	20 "	6 4-5	Fount	150.00

GOULDS "METEOR" DOUBLE-ACTING SUCTION AND FORCE PUMPS.

FIG. 682.



The "Meteor" Double-Acting Suction and Force Pumps are similar in appearance to our famous "Star" Pumps given on following pages, but of somewhat lighter and less expensive pattern, having leather instead of brass poppet valves, etc. These valves are all under one case in front and can be readily examined or removed if necessary without disturbing pipe connections, while plugs are provided for emptying pumps in cold weather.

Fig. 682 is designed to be worked by hand with wood brake, but can be adapted for power as well by substituting special strap rod for regular straps at extra price.

Fig. 683 is the same pump, which we build in larger sizes with stub end for welding to connecting rod; driven by any power, as steam or wind, working head, counter shaft, working beam, etc. This style can also be used in open wells or pits of any depth if placed within suction distance of water.

FIG. 682. Sizes, Prices, Etc.

Diameter Cylinder.	Stroke.	Suc. and Discharge.	Gal. per Revolution.	IRON.	
				Cipher.	Price.
2½ in.	8 in.	1½ in.	1-4	Rush	$45.00
3 "	8 "	1½ "	1-2	Rusk	55.00
4 "	8 "	2 "	7-8	Rut	65.00
5 "	8 "	2½ "	1 1-3	Rusty	90.00

FIG. 683.

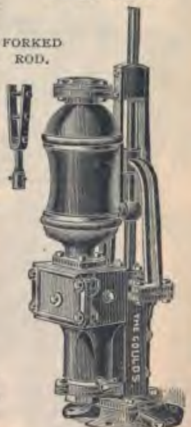


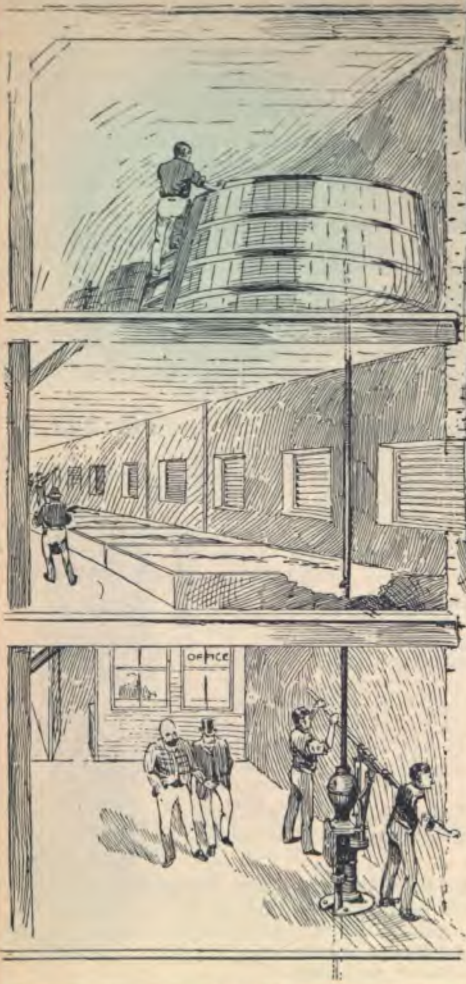
FIG. 683. Sizes, Prices, Etc.

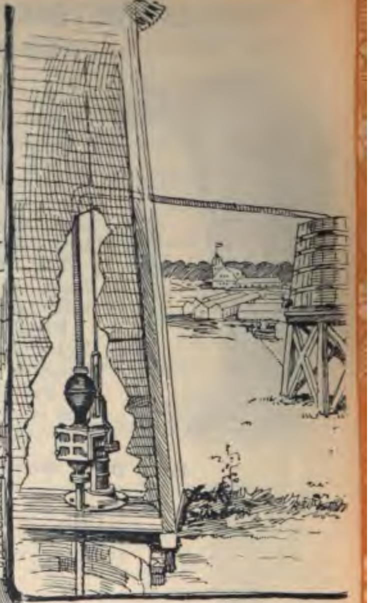
Diameter Cylinder.	Stroke.	Suc. and Discharge.	Gal. per Revolution.	IRON.	
				Cipher.	Price.
2½ in.	8 in.	1½ in.	1-4	Sabre	$45.00
3 "	8 "	1½ "	1-2	Sack	55.00
3 "	12 "	1½ "	3-4	Sad	60.00
4 "	8 "	2 "	7-8	Safe	65.00
4 "	12 "	2 "	1 1-4	Sag	82.50
5 "	8 "	2½ "	1 1-3	Sage	90.00
5 "	12 "	2½ "	2	Sags	95.00

Fig. 682, Strap Rod, in place of regular straps, $5.00 extra list.
Fig. 683, Forked Rod, $2.50 list.

Above computations of capacity are based on pump being worked its full stroke. The speed at which these Pumps should be operated, depends on the diameter and th length of stroke; but we can offer, as a general rule of practice, the following:

8 inch stroke Pumps, 50 to 60 revolutions per minute.
12 inch stroke Pumps, 35 to 40 revolutions per minute.





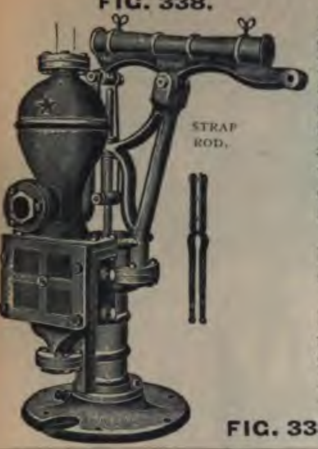
The uses of our large "Star" Double-Acting Force Pumps are so many and varied that we can but offer these adaptations as suggestive of others.

At the left is our hand Pump, adapted for the use of malt houses, distilleries, mills, or for any place or purpose where it is desired to raise large quantities of water by manual power.

In the upper corner is our Power Pump, operated by Wind Mill, for irrigation, etc. It can, of course, be driven by any other power and connected with a walking beam, crank shaft, face plate, etc. May be placed above or in well or pit, and is made in a number of sizes, as given on opposite page. See also pages 111 and 112 for illustration of Fig. 339, as used in deep wells.

"STAR" DOUBLE-ACTING SUCTION AND FORCE PUMPS.

FIG. 338.



Figs. 338 and **339** represent our famous "Star" Double-Acting Force Pump, especially designed for the use of distilleries, mills, railroad companies, etc. Briefly described: The Pump is exceptionally heavy and strong in casting, the plunger, plunger rod, and solid cross-head are of bronze, while the valves (four in number), with their seats, are of the same metal, and grouped under valve cover in front. These valves are of a new type, calculated to develop greatest efficiency, and rubber faced, rendering them perfectly tight and relieving pump of all pounding.

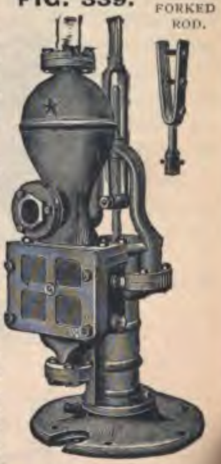
Fig. 338 is designed to be worked by wood levers, but can be arranged for power as well, by substituting special Strap Rod for regular straps, at $5.00 extra list.

Fig. 339 is the same Pump, which we build in larger sizes, with stub end for welding to connecting rod driven by any power, as steam or wind, working head, countershaft, working beam, etc., or with Forked Rod, at $2.50 extra list.

FIG. 338. Sizes, Prices, Etc.

Dia. Cyl.	Stroke.	Suc. and Dis.	Gal. per Rev.	IRON.		BRASS-LINED CYL.	
				Cipher.	Price.	Cipher.	Price.
3 in.	8 in.	1½ in.	1-2	Ebon	$65.00	Edge	$72.00
4 "	8 "	2 "	7-8	Echo	75.00	Edict	82.00
5 "	8 "	2½ "	1 1-3	Eddy	90.00	Edify	97.50
6 "	8 "	3 "	2	Edend	120.00	Edited	130.00
				FIG. 339.			
3 in.	8 in.	1½ in.	1-2	Educt	$65.00	Elder	$72.00
4 "	8 "	2 "	7-8	Eel	75.00	Elect	82.00
5 "	8 "	2½ "	1 1-3	Egg	90.00	Elf	97.50
6 "	8 "	3 "	2	Eider	120.00	Elite	130.00
4 "	10 "	2 "	1	Eight	95.00	Elk	105.00
3 "	12 "	1½ "	3-4	Eject	78.00	Ell	90.00
4 "	12 "	2 "	1 1-3	Eke	101.00	Elm	115.00
5 "	12 "	2½ "	2	Eland	120.00	Elogy	135.00
5 "	15 "	2½ "	2 1-2	Elate	135.00	Elong	150.00
5 "	18 "	2½ "	3	Elapse	170.00	Elastic	180.00
6 "	14 "	3 "	3 1-3	Elbow	175.00	Elope	190.00
6 "	18 "	3 "	4 1-3	Eld	225.00	Elsen	250.00
7 "	12 "	4 "	4	Elderly	210.00	Eldern	235.00
7 "	14 "	4 "	4 2-3	Elding	225.00	Eldorado	250.00
7 "	18 "	4 "	6	Eldrich	250.00	Elasticity	280.00
8 "	12 "	5 "	5 1-4	Election	300.00	Elector	330.00
8 "	15 "	5 "	6 1-2	Electric	340.00	Elective	375.00
8 "	18 "	5 "	7 4-5	Elegant	400.00	Elegist	440.00
8 "	24 "	5 "	10 2-5	Elegiac	450.00	Element	500.00

FIG. 339.

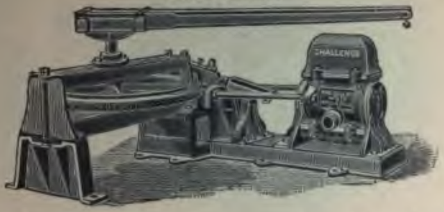


osite page for description and prices.

GOULDS STRONG PONY OR HORSE GEAR AND PUMP.

FOR SHALLOW WELLS OR STREAMS.

FIG. 790.



Appreciating the demand for a strong, compact, and serviceable combination of Horse-Power and Pump, capable of both lifting and forcing water for portable or stationary use, we offer our **Fig. 790,** believing it will be a welcome substitute for the cumbersome walking beams, operating still more unwieldy open-top Pumps, capable of lifting and discharging water only at surface of ground, with a vast outlay and loss of power.

On opposite page we illustrate in practical operation our Single Horse Gear and "Challenge" Double-Acting Force Pump, pumping water for irrigation, ditches, etc., while by the use of a reducing discharge pipe we have an efficient Fire Engine. The water may be taken from any source not more than 25 feet below Pump, and forced or distributed to any distance or height through hose or pipe to supply tanks, etc.

It possesses innumerable advantages over many primitive combinations offered for same purpose. The supporting bed plate is heavy and strong enough to prevent any possible derangement of parts, while the face plate on pinion shaft drives direct the Pump without other intermediate parts than necessary guide, guide rod, and pitman.

The Pump is one of our best, suitable for almost every demand or emergency, the Cylinder being lined with brass and the valves, valve seats, and piston rod made of the same metal.

Repairs can easily be made by unscrewing the brass nuts at the side of the air chamber, when the Pump can readily be taken apart.

Suction and discharge fitted for wrought-iron pipe, unless otherwise ordered.

FIG. 790. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Dis.	Stroke.	Gal. per Rev.	IRON.	
						Cipher.	Price.
12	5 in.	2 in.	1½ in.	5 in.	7-8	Volley	$175.00
16	6 "	2½ "	2 "	5 "	1 1-4	Volow	190.00

GOULDS HORSE GEAR PUMPING APPARATUS.

FOR ONE OR TWO HORSES.

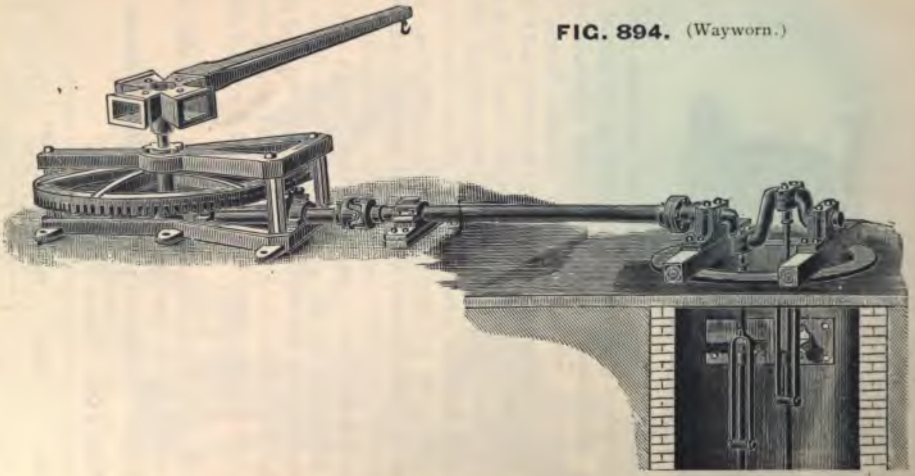


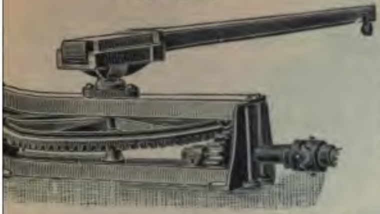
FIG. 894. (Wayworn.)

This consists of Horse Gear amply strong for two horses; two-throw wrought iron crank shaft, plummer blocks for mounting on timbers placed on top of well, slings, guides and rods for connecting to pump rods below. The apparatus is very simple, requires but little attention and will work satisfactorily where vertical lift is not over 200 feet. A track with radius of 10 feet is recommended; the animal tracking between well and gear with this outfit. An animal makes 3 to 4 circuits per minute. Power of donkey or pony one-half that of horse. Our remarks on selection of cylinders given on page 86 are applicable to this as well. We usually recommend our **Figs. 526** or **527** given on page 96.

Prices for similar outfits will be [illegible] **Figs. 884** and **885**, pages 105 and

GOULDS STRONG PONY OR ONE-HORSE POWER.

FIG. 597



The cut shows a very simple though thoroughly constructed One-Horse or Pony Gear for operating any kind of agricultural machinery, as feed cutters, corn mills, etc., etc. We furnish it complete, as shown in cut, with universal joint and stub end to weld to horizontal shaft, and hard-wood pole ten feet long. Weight, 333 pounds; frame 38 x 12 in., 10 in. high.

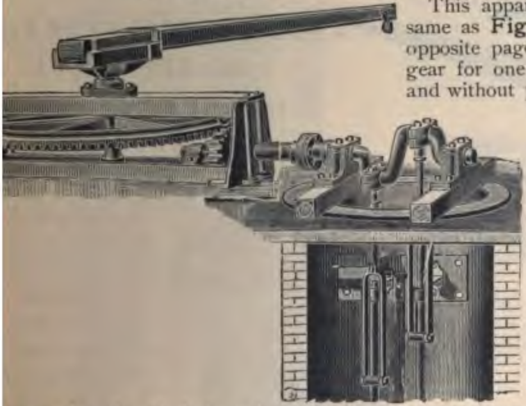
FIG. 597. Size, Price, Etc.

Dia. ge Wheel.	No. Teeth.	Dia. Pinion.	No. Teeth.	Cipher.	Price.
31 in.	91	4$\frac{5}{8}$ in.	14	Miry	$55.00

f pole is not furnished a reasonable allowance will be made.
ee following page for larger gear.

OULDS STRONG PONY OR ONE-HORSE GEAR PUMPING APPARATUS.

FIG. 884.



This apparatus is substantially the same as **Fig. 894,** fully described on opposite page, except it is our lighter gear for one horse, pony or bullock, and without plummer block or universal coupling, it being intended that animal shall track outside of well and not between well and gear.

FIG. 884. Price.

One-Horse Gear, with coupling, plummer blocks, two-throw crank shaft, slings and guides (Wayfare), ...	$110.00
Hard-wood pole, extra, . . .	3.00

onger lengths of shaft and additional plummer blocks furnished as ordered, at cost.
ee following page for heavier apparatus.

GOULDS IRON HORSE POWER.

FOR ONE OR TWO HORSES.

FIG. 597 1-2.

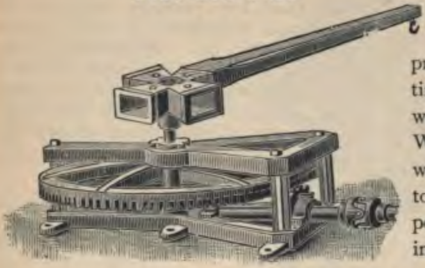


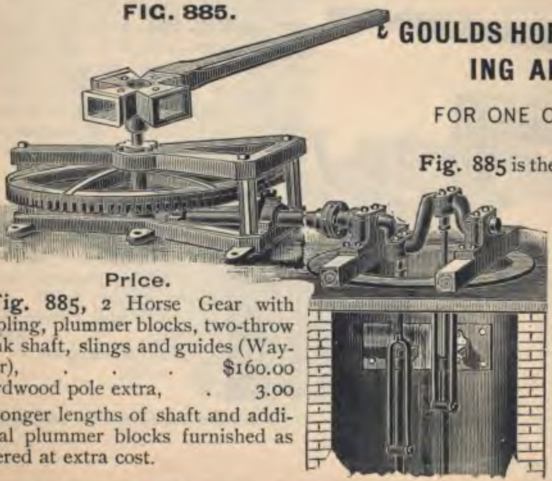
Fig. 597 1-2 represents the larger form of our **Fig. 597**, described on previous page, and is designed for operating any kind of agricultural machinery which can be driven by one or two horses. We furnish it complete as shown in cut with universal joint and stub end, to weld to horizontal shaft and 10 ft. hardwood pole. Weight 800 lbs. Frame 48 x 32 inches, 13 inches high.

FIG. 597 1-2. Sizes, Prices, Etc.

Diam. Large Wheel.	No. Teeth.	Diameter Pinion.	No. Teeth.	Cipher.	Price.
38½ in.	97	6⅜ in.	16	Miss	$120 00

When pole is not furnished a reasonable reduction will be made.

FIG. 885.



GOULDS HORSE GEAR PUMPING APPARATUS.

FOR ONE OR TWO HORSES.

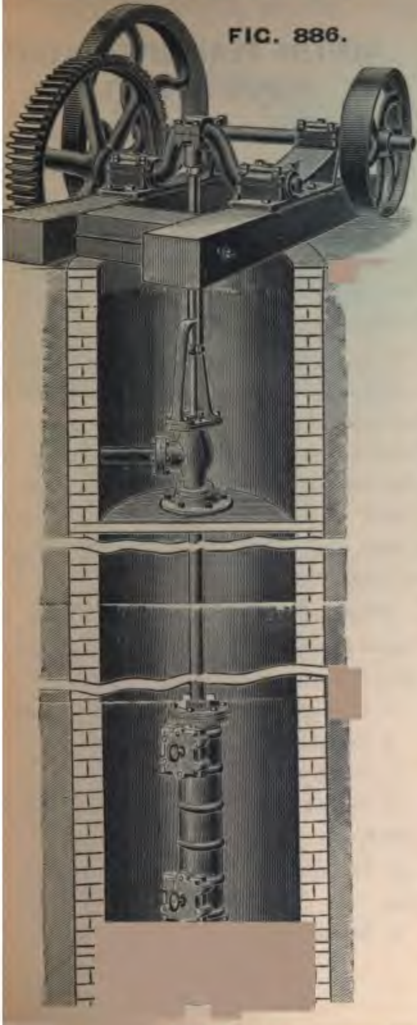
Fig. 885 is the same as our **Fig. 894**, described on page 104, less the plummer block and universal joint not necessary where animal tracks outside of well. We will not repeat previous remarks, but refer to above Fig. and page for full description.

Price.

Fig. 885, 2 Horse Gear with coupling, plummer blocks, two-throw crank shaft, slings and guides (Wayfarer), ... $160.00
Hardwood pole extra, . 3.00

Longer lengths of shaft and additional plummer blocks furnished as ordered at extra cost.

FIG. 886.



GOULDS POWERFUL INTERMEDIATE GEARING.

This consists of Massive Spur Gear Wheel, 38-inch diameter, 5-inch face, single or double throw wrought iron Crank, as ordered; Spur Pinion, 7½-inch diameter; wrought iron Countershaft; anti-friction, metal-lined boxes; substantial Plummer Blocks; ponderous Fly Wheel; turned Pulley or Rigger, 3 feet diameter, and 8 inch face, the whole mounted on and securely bolted to strong seasoned Oak Bed Plate, framed and pinned together, and additionally secured by wrought iron Stretcher Rods; for operating either single or double-barrel pumps of large sizes, and from 8 to 14 inches stroke in deep wells, mines, shafts, or elsewhere, where water has to be lifted to surface of ground, and can be driven by either portable or stationary engine, by belt.

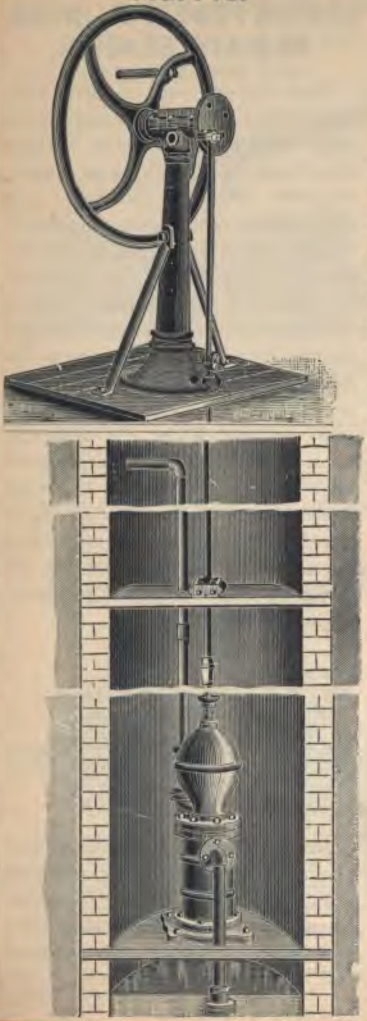
FIG. 886. Prices.

Single throw, 8 in. stroke (Wearied)	$175.00
Double " 8 " . (Weary)	225.00

Longer strokes accordingly.

Note.—Our illustration represents plan of well with gearing, and also working head and cylinder, described on page 98. *Our remarks and prices apply only to gearing shown above well.*

FIG. 715.



GOULDS PLAN OF SETTING PUMPS IN WELLS.

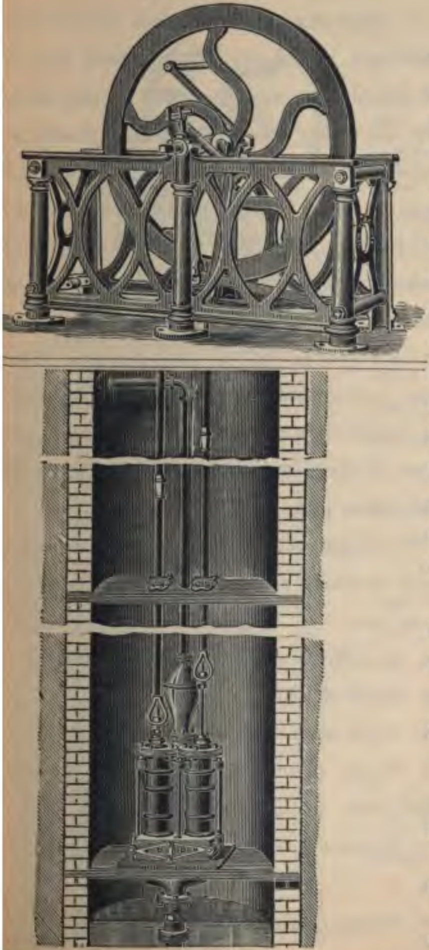
The illustration shows a sectional view of well with Pump, pipes, rods, slings, guides, etc., as they should be arranged to attain greatest efficiency, with Standard above. This latter should be levelled and held firmly to coping or planks laid across the well. The Pump should not exceed 20 feet above low water level, with suction pipe and check valve at end extending nearly to bottom of well. Roller guides should be stationed every 12 feet on stages for rods to work through. This Standard is illustrated and described on page 91. The Pump or working barrel, on page 61, and prices of pipe, rods, guides, etc., will be found among latter pages of book.

When soliciting information or advice in regard to size of Pumps to be used, we should have following facts:

1. Quantity of water required in given time.
2. Depth of well.
3. Depth of water in well.
4. Height above ground level water is to be raised, and
5. Horizontal distance from well's mouth, if any.
6. Manual or what other kind of power.

GOULDS PLAN OF SETTING PUMPS IN WELLS.

FIG. 716.



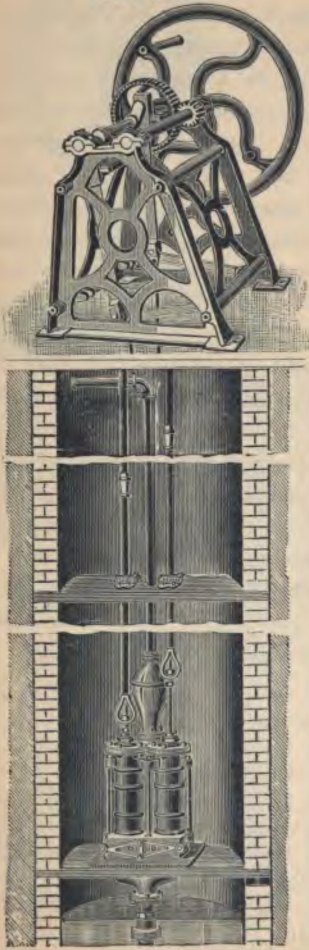
The illustration shows a section view of well with Pump, pipes, rods, slings, guides, etc., as they should be arranged to attain greatest efficiency, with frame above. This latter should be levelled and held firmly to coping or planks laid across the well. The pump should not exceed twenty feet above low water level, with suction pipe and check valve at end extending nearly to bottom of well. Roller guides should be stationed every twelve feet on stages for rods to work through. This frame is illustrated and described on page 93, the pump, or working barrel, on page 96, and prices of pipe, rods, guides, etc., will be found among latter pages of book.

When soliciting information or advice in regard to size of pumps to be used, we should have the following facts:

1. Quantity of water required in given time.
2. Depth of well.
3. Depth of water in well.
4. Height above ground level water is to be raised, and
5. Horizontal distance from well's mouth, if any.
6. Manual, or what other kind of power.

GOULDS PLAN OF SETTING PUMPS IN WELLS.

FIG. 718.



The illustration shows a section view of well with Pump, pipes, rods, slings, guides, etc., as they should be arranged to attain greatest efficiency, with frame above. This latter should be levelled and held firmly to coping or planks laid across the well. The Pump should not exceed 20 feet above low water level, with suction pipe and check valve at end extending nearly to bottom of well. Roller guides should be stationed every 12 feet on stages for rods to work through. This frame is illustrated and described on page 92. The Pump or working barrel, on page 96, and prices of pipe, rods, guides, etc., will be found among latter pages of book.

When soliciting information or advice in regard to size of Pumps to be used, we should have following facts:

1. Quantity of water required in given time.
2. Depth of well.
3. Depth of water in well.
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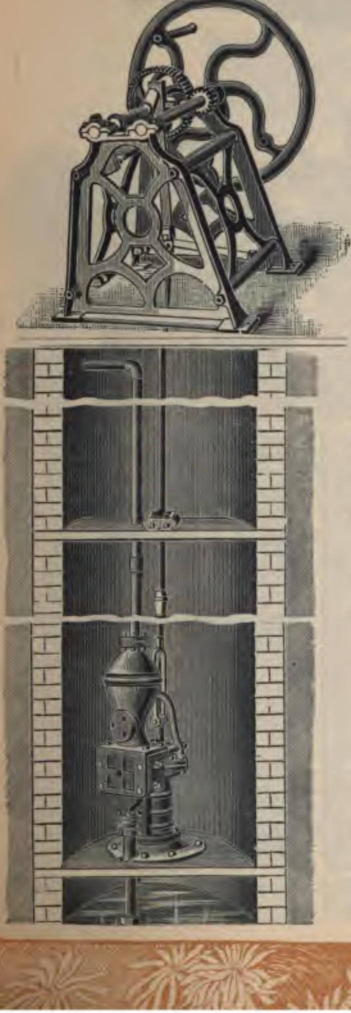
5. Horizontal distance from well's mouth, if any.
6. Manual or what other kind of power.

GOULDS PLAN OF SETTING PUMPS IN WELLS.

FIG. 719.



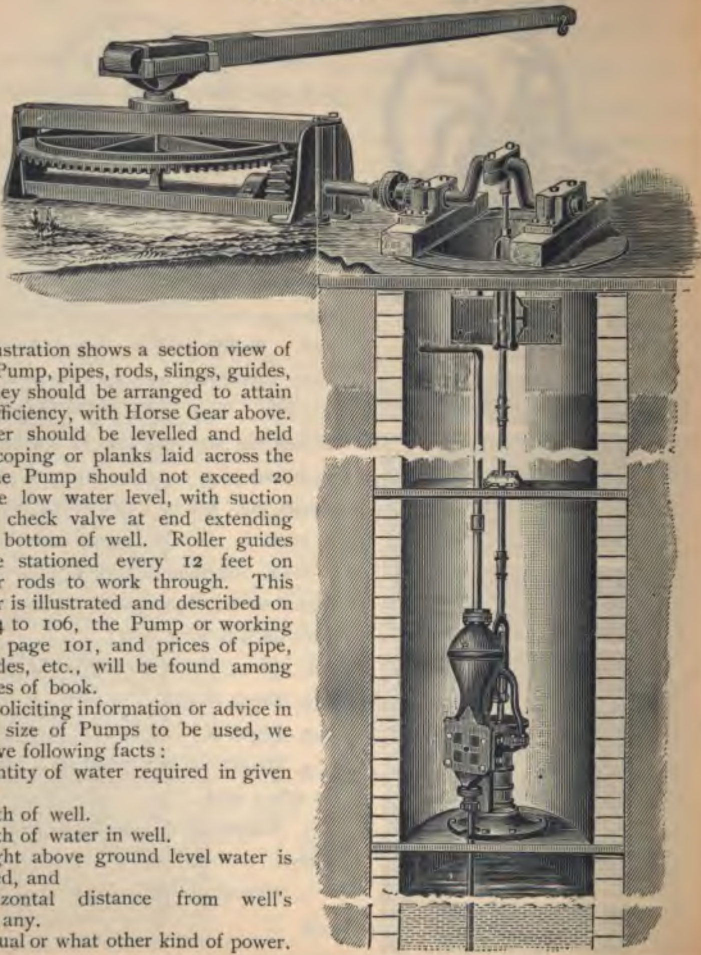
The illustration shows a section view of well with Pump, pipes, rods, slings, guides, etc., as they should be arranged to attain greatest efficiency, with frame above. This latter should be levelled and held firmly to coping or planks laid across the well. The pump should not exceed twenty feet above low water level, with suction pipe and check valve at end extending nearly to bottom of well. Roller guides should be stationed every twelve feet on stages for rods to work through. This frame is illustrated and described on page 92, the Pump, or working barrel, on page 101, and prices of pipe, rods, guides, etc., will be found among latter pages of book.

When soliciting information or advice in regard to size of pumps to be used, we should have the following facts:

1. Quantity of water required in given time.
2. Depth of well.
3. Depth of water in well.
4. Height above ground level water is to be raised, and
5. Horizontal distance from well's mouth if any.
6. Manual or what other kind of power.

GOULDS PLAN OF SETTING PUMPS IN WELLS.

FIG. 652.



The illustration shows a section view of well with Pump, pipes, rods, slings, guides, etc., as they should be arranged to attain greatest efficiency, with Horse Gear above. This latter should be levelled and held firmly to coping or planks laid across the well. The Pump should not exceed 20 feet above low water level, with suction pipe and check valve at end extending nearly to bottom of well. Roller guides should be stationed every 12 feet on stages for rods to work through. This horse gear is illustrated and described on pages 104 to 106, the Pump or working barrel on page 101, and prices of pipe, rods, guides, etc., will be found among latter pages of book.

When soliciting information or advice in regard to size of Pumps to be used, we should have following facts:

1. Quantity of water required in given time.
2. Depth of well.
3. Depth of water in well.
4. Height above ground level water is to be raised, and
5. Horizontal distance from well's mouth, if any.
6. Manual or what other kind of power.

GOULDS PLAN OF SETTING PUMPS IN WELLS.

FIG. 720.

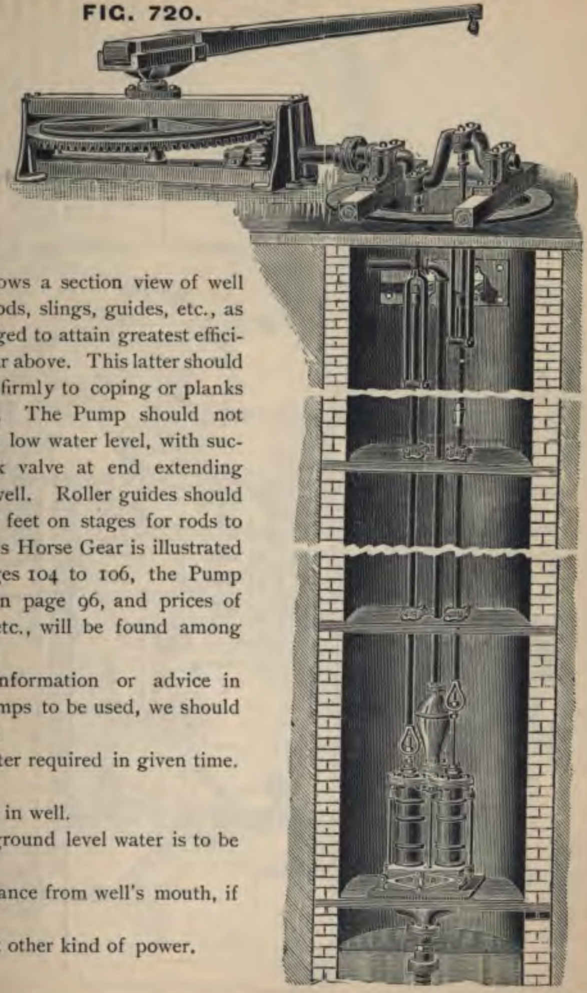


illustration shows a section view of well ımp, pipes, rods, slings, guides, etc., as ould be arranged to attain greatest effici- ith Horse Gear above. This latter should led and held firmly to coping or planks ross the well. The Pump should not 20 feet above low water level, with suc- pe and check valve at end extending o bottom of well. Roller guides should oned every 12 feet on stages for rods to ırough. This Horse Gear is illustrated cribed on pages 104 to 106, the Pump king barrel on page 96, and prices of ds, guides, etc., will be found among ages of book.

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uantity of water required in given time.
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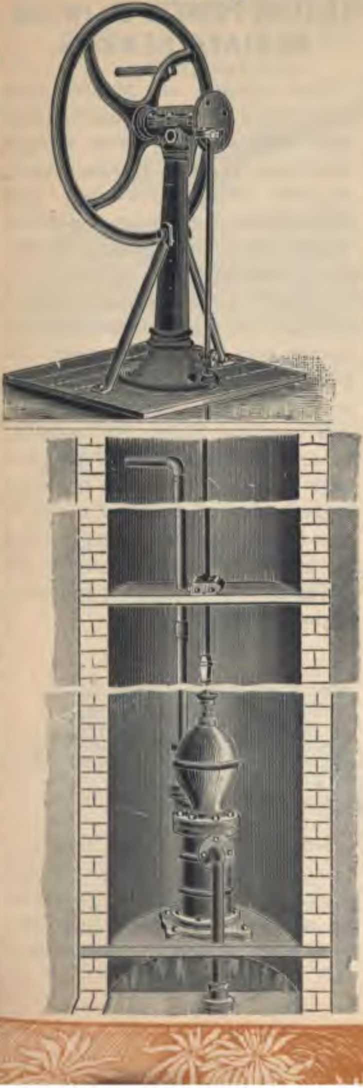
eight above ground level water is to be and
orizontal distance from well's mouth, if

anual or what other kind of power.

FIG. 715.



GOULDS PLAN OF SETTING PUMPS IN WELLS.

The illustration shows a sectional view of well with Pump, pipes, rods, slings, guides, etc., as they should be arranged to attain greatest efficiency, with Standard above. This latter should be levelled and held firmly to coping or planks laid across the well. The Pump should not exceed 20 feet above low water level, with suction pipe and check valve at end extending nearly to bottom of well. Roller guides should be stationed every 12 feet on stages for rods to work through. This Standard is illustrated and described on page 91. The Pump or working barrel, on page 61, and prices of pipe, rods, guides, etc., will be found among latter pages of book.

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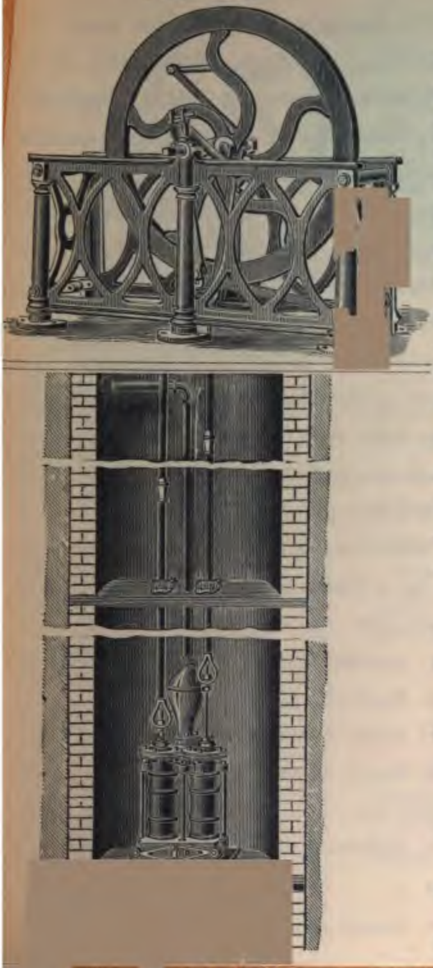
5. Horizontal distance from well's mouth, if any.
6. Manual or what other kind of power.

GOULDS PLAN OF SETTING PUMPS IN WELLS.

FIG. 716.



The illustration shows a section view of well with Pump, pipes, rods, slings, guides, etc., as they should be arranged to attain greatest efficiency, with frame above. This latter should be levelled and held firmly to coping or planks laid across the well. The pump should not exceed twenty feet above low water level, with suction pipe and check valve at end extending nearly to bottom of well. Roller guides should be stationed every twelve feet on stages for rods to work through. This frame is illustrated and described on page 93, the pump, or working barrel, on page 96, and prices of pipe, rods, guides, etc., will be found among latter pages of book.

When soliciting information or advice in regard to size of pumps to be used, we should have the following facts:

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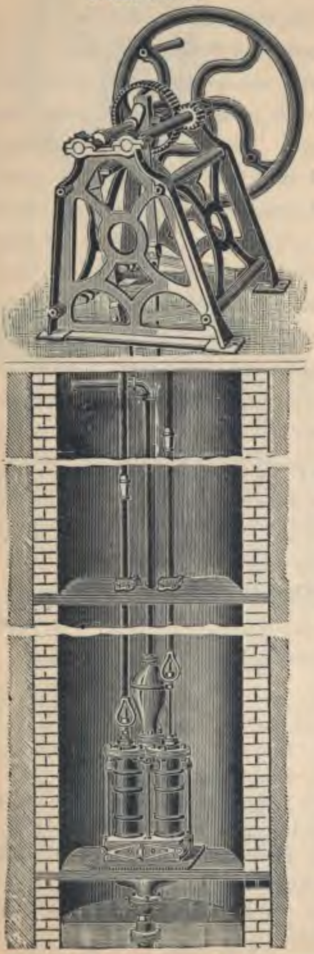
2. Depth of well.
3. Depth of water in well.
4. Height above ground level water is to be raised, and
5. Horizontal distance from well's mouth, if any.
6. Manual, or what other kind of power.

GOULDS PLAN OF SETTING PUMPS IN WELLS.

FIG. 718.



The illustration shows a section view of well with Pump, pipes, rods, slings, guides, etc., as they should be arranged to attain greatest efficiency, with frame above. This latter should be levelled and held firmly to coping or planks laid across the well. The Pump should not exceed 20 feet above low water level, with suction pipe and check valve at end extending nearly to bottom of well. Roller guides should be stationed every 12 feet on stages for rods to work through. This frame is illustrated and described on page 92. The Pump or working barrel, on page 96, and prices of pipe, rods, guides, etc., will be found among latter pages of book.

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3. Depth of water in well.
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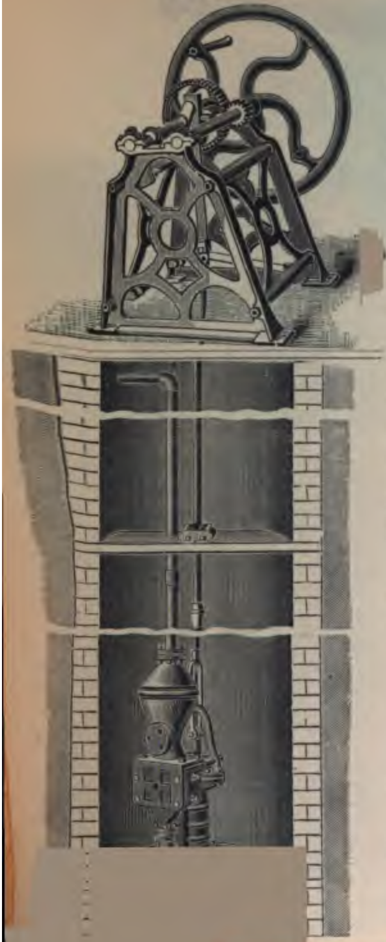
5. Horizontal distance from well's mouth, if any.
6. Manual or what other kind of power.

GOULDS PLAN OF SETTING PUMPS IN WELLS.

FIG. 719.



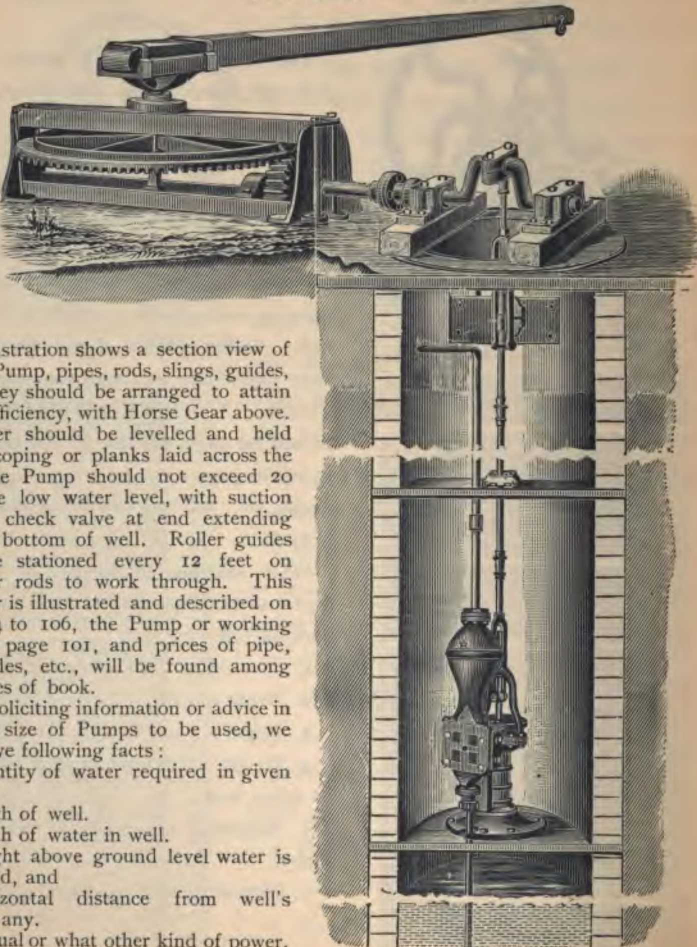
The illustration shows a section view of well with Pump, pipes, rods, slings, guides, etc., as they should be arranged to attain greatest efficiency, with frame above. This latter should be levelled and held firmly to coping or planks laid across the well. The pump should not exceed twenty feet above low water level, with suction pipe and check valve at end extending nearly to bottom of well. Roller guides should be stationed every twelve feet on stages for rods to work through. This frame is illustrated and described on page 92, the Pump, or working barrel, on page 101, and prices of pipe, rods, guides, etc., will be found among latter pages of book.

When soliciting information or advice in regard to size of pumps to be used, we should have the following facts:

1. Quantity of water required in given time.
2. Depth of well.
3. Depth of water in well.
4. Height above ground level water is to be raised, and
5. Horizontal distance from well's mouth if any.
6. Manual or what other kind of power.

GOULDS PLAN OF SETTING PUMPS IN WELLS.

FIG. 652.



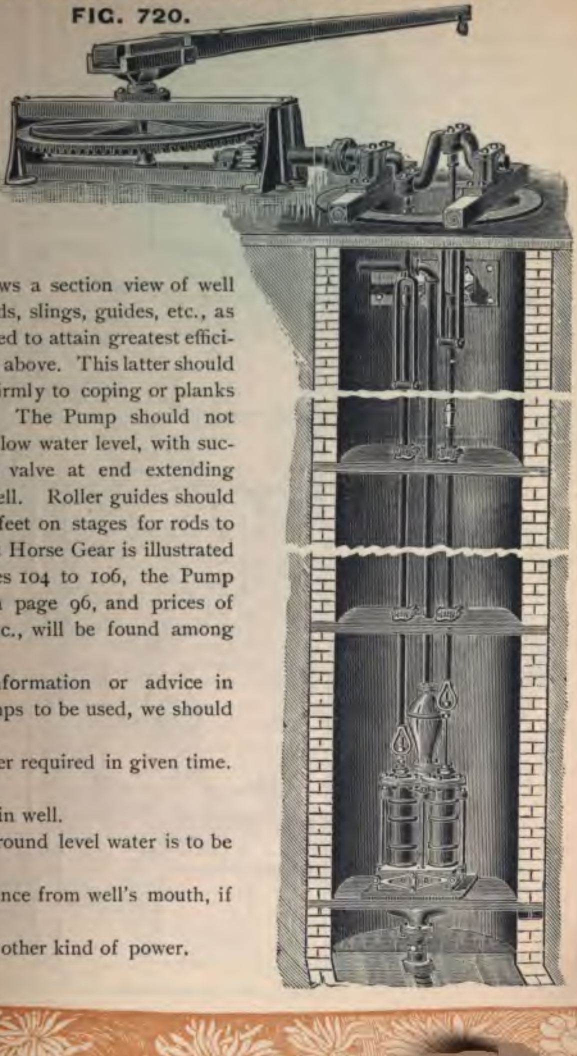
The illustration shows a section view of well with Pump, pipes, rods, slings, guides, etc., as they should be arranged to attain greatest efficiency, with Horse Gear above. This latter should be levelled and held firmly to coping or planks laid across the well. The Pump should not exceed 20 feet above low water level, with suction pipe and check valve at end extending nearly to bottom of well. Roller guides should be stationed every 12 feet on stages for rods to work through. This horse gear is illustrated and described on pages 104 to 106, the Pump or working barrel on page 101, and prices of pipe, rods, guides, etc., will be found among latter pages of book.

When soliciting information or advice in regard to size of Pumps to be used, we should have following facts:

1. Quantity of water required in given time.
2. Depth of well.
3. Depth of water in well.
4. Height above ground level water is to be raised, and
5. Horizontal distance from well's mouth, if any.
6. Manual or what other kind of power.

GOULDS PLAN OF SETTING PUMPS IN WELLS.

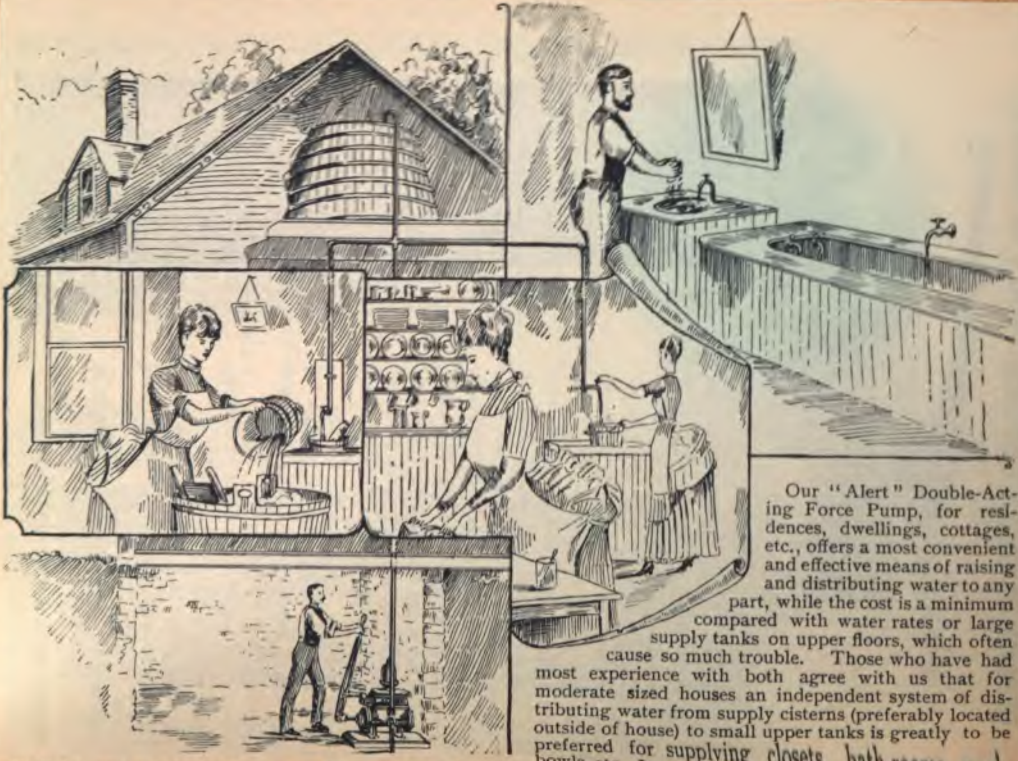
FIG. 720.



The illustration shows a section view of well with Pump, pipes, rods, slings, guides, etc., as they should be arranged to attain greatest efficiency, with Horse Gear above. This latter should be levelled and held firmly to coping or planks laid across the well. The Pump should not exceed 20 feet above low water level, with suction pipe and check valve at end extending nearly to bottom of well. Roller guides should be stationed every 12 feet on stages for rods to work through. This Horse Gear is illustrated and described on pages 104 to 106, the Pump or working barrel on page 96, and prices of pipe, rods, guides, etc., will be found among latter pages of book.

When soliciting information or advice in regard to size of Pumps to be used, we should have following facts :

1. Quantity of water required in given time.
2. Depth of well.
3. Depth of water in well.
4. Height above ground level water is to be raised, and
5. Horizontal distance from well's mouth, if any.
6. Manual or what other kind of power.

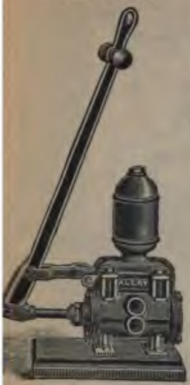


Our "Alert" Double-Acting Force Pump, for residences, dwellings, cottages, etc., offers a most convenient and effective means of raising and distributing water to any part, while the cost is a minimum compared with water rates or large supply tanks on upper floors, which often cause so much trouble. Those who have had most experience with both agree with us that for moderate sized houses an independent system of distributing water from supply cisterns (preferably located outside of house) to small upper tanks is greatly to be preferred for supplying closets, bath-rooms, wash-bowls, etc. In proportion to its capacity it is phenomenally light, and can be easily operated by persons of moderate strength, with entire freedom from all jarring and pounding. See opposite page for description and prices.

GOULDS "ALERT" SUCTION AND FORCE PUMP.

DOUBLE-ACTING.

FIG. 747.



This new Pump is similar to the "Challenge," which we were first to build and popularize, but instead of the expensive composition valves and valve seats, this Pump has leather valves. In general character it partakes of the Steam Pump style, the valves all being grouped together under the air chamber and can be readily exposed to view by unscrewing the bolts at side, when the whole Pump can be taken apart. The suction and discharge openings, screwed for iron pipe, are on both sides of Cylinder (we plug one set), so that suction or discharge can be used on either or both sides, if necessary. We always screw them for sizes of iron pipe named below, but can fit them for lead pipe or hose, if so ordered, at extra cost. Stroke, 5 inches.

FIG. 747. Sizes, Prices, Etc.

No.	Dia. Cyl.	Double Suc.	Double Dis.	Gal. per Rev.	IRON.		BRASS.	
					Cipher.	Price.	Cipher.	Price.
2	2½ in.	1¼ in.	1 in.	1-5	Vare	16.00	Wardcorn	60.00
4	3 "	1¼ "	1 "	3-10	Varech	18.00	Warden	65.00
6	3½ "	1½ "	1¼ "	2-5	Vives	24.00	Warder	80.00
8	4 "	1½ "	1¼ "	1-2	Vivid	31.00	Wardian	90.00

GOULDS "CHALLENGE" SUCTION AND FORCE PUMP.

DOUBLE-ACTING. WITH BRASS LINED CYLINDER.

FIG. 494.

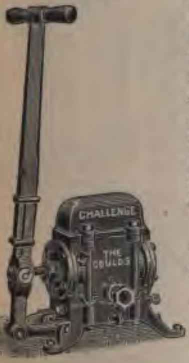


Fig. 494 represents our Double-Acting "Challenge" Force Pump, with heavy cast-iron base, and is adapted for every purpose where a stationary Pump of this kind can be used about the house, factory, store, etc., etc. The Cylinder is lined with brass; the piston rod, valves and valve seats are brass; the nuts on the rods on either side of the Pump are brass also, so that it will be seen all parts of the Pump exposed to the action of water are non-corrosive. At each end of bed plate are brass plugs for letting off the water to prevent freezing, while there is another and larger brass plug for priming the Pump when necessary. We can fit suction and discharge for hose or lead pipe, but always fit for wrought-iron pipe unless otherwise ordered. Stroke, 4½ inches.

FIG. 494. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Dis.	Gal. per Rev.	IRON.		BRASS.	
					Cipher.	Price.	Cipher.	Price.
2	2½ in.	1¼ in.	1 in.	1-5	Hawk	27.00	Loon	$75.00
4	3 "	1¼ "	1 "	3-10	Hay	27.00	Lope	75.00
8	4 "	1½ "	1¼ "	1-2	Haze	28.00	Loss	90.0
12	5 "	2 "	1½ "	7-8	Hazy	42.00	Lost	110.0

For Spring Piston (brass) add to list, Nos. 2 and 4, $3.00; No. 8, $4.00; No. 12, $6.

GOULDS OIL OR WINE PUMPS.

In our sketch we represent two entirely different classes of pumps, either of which are adapted for the duties of the other as well as manifold other purposes. The Rotary Pump is a peculiar type of cam pump without valves, and will pump liquids of any consistency, hot or cold, and force them any distance desired.

The different styles of these pumps for hand or power use, are illustrated on pages 135 to 150.

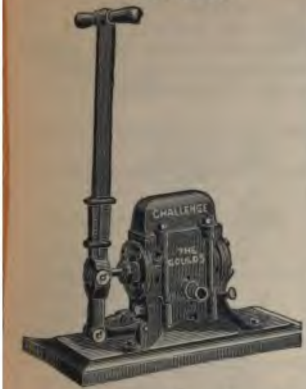
The "Challenge" Double-Acting Force Pump represents the highest type of a plunger pump and for purpose illustrated is built in all brass with metallic valves throughout.

The following pages give the many forms and adaptations of this pump.

GOULDS "CHALLENGE" SUCTION AND FORCE PUMP.

DOUBLE-ACTING. WITH BRASS-LINED CYLINDER.

FIG. 470.



The cut represents our "Challenge" Double-Acting Force Pump, on plank, of great compactness and power, for use on shipboard, wharves, around factories, mills, warehouses, etc. The Cylinder is lined with brass; the piston, piston rod, valves and valve seats are bronze, so that it will be seen all parts of the Pump exposed to the action of water are non-corrosive.

We fit them usually for hose connections, though we furnish connections for either lead or iron pipe, if ordered. Only one set of connections goes with a Pump at list price. Stroke, 5 inches.

FIG. 470. (Weather.) **Sizes, Prices, Etc.**

No.	Dia. Cyl.	Suc.	Dis.	Gal. per Rev.	Iron.	Brass.
2	2½ in.	1¼ in.	1 in.	1-5	$27.00	$75.00
4	3 "	1¼ "	1 "	3-10	27.00	75.00
8	4 "	1½ "	1¼ "	1-2	28.00	90.00
12	5 "	2 "	1½ "	7-8	42.00	110.00

For Spring Piston (brass) add to list, Nos. 2 and 4, $3.00; No. 8, $4.00; No. 12, $6.00.

GOULDS "CHALLENGE" SUCTION AND FORCE PUMP.

DOUBLE-ACTING. WITH DOUBLE LEVERS.

FIG. 562.

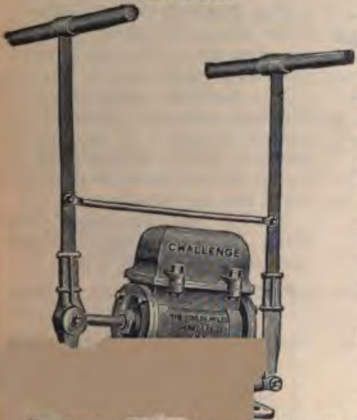


Fig. 562 represents our "Challenge" Pump, described above in a larger form, and arranged with double levers. This Pump has only one stuffing box, so that it is less liable to leak than with two, and in case of such an accident, one set of valves would be in readiness at all events, and thus arranged can be operated, too, with much less friction and labor. For use on ship wharves, about factories, mills, warehouses, etc., it is capable of inestimable service.

Both suction and discharge fitted for hose unless otherwise ordered. Can be fitted for wrought-iron pipe if desired. Stroke, 5 inches.

FIG. 562. (Weasy.) **Sizes, Prices, Etc.**

No.	Dia. Cyl.	Suc.	Dis.	Iron.	Brass.
12	5 in.	2 in.	1½ in.	$45.00	$125.
16	6 "	2½ "	2 "	50.00	175.

For Spring Piston (brass) add to list, No. 12, $6.00; No. 16, $8.00.

GOULDS "CHALLENGE" SUCTION AND FORCE PUMP.

FIG. 708.

DOUBLE-ACTING. FOR HAND OR POWER.

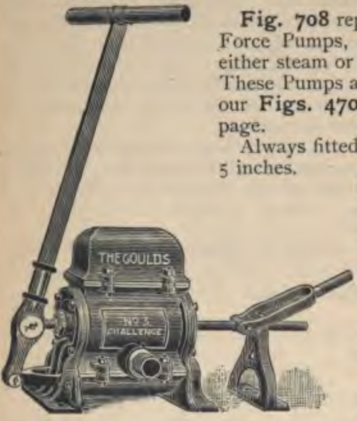


Fig. 708 represents one of our "Challenge" Double-Acting Force Pumps, arranged with pitman and guide to connect to either steam or water power, and with a removable hand lever. These Pumps are constructed in the same thorough manner as our **Figs. 470, 562,** etc., more fully described on previous page.

Always fitted for gas pipe unless otherwise ordered. Stroke 5 inches.

FIG. 708. (Weasel.) **Sizes, Prices, Etc.**

No.	Diam. Cyl.	Suc.	Dis.	Gal. per Rev.	Iron.	Brass.
2	2½ in.	1¼ in.	1 in.	1-5	$35.00	$85.00
4	3 "	1¼ "	1 "	3-10	40.00	90.00
8	4 "	1½ "	1¼ "	1-2	45.00	105.00
12	5 "	2 "	1½ "	7-8	55.00	125.00
16	6 "	2½ "	2 "	1 1-4	60.00	175.00

For Spring Pistons (brass) add to lists Nos. 2 and 4, $3.00; No. 8, $4.00; No. 12, $6.00; No. 16, $8.00.

GOULDS "CHALLENGE" SUCTION AND FORCE PUMP.

DOUBLE-ACTING. ON PLATFORM WITH WHEELS.

FIG. 774.

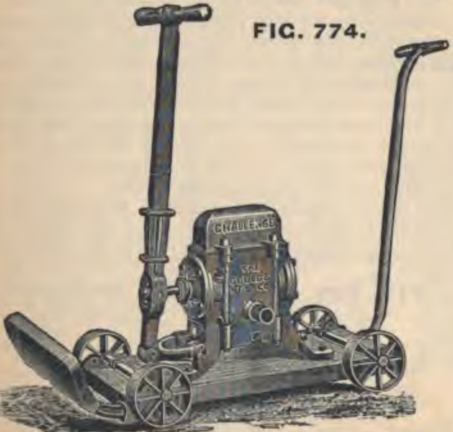


Fig. 774 represents "Challenge" Force Pump, described on preceding page, mounted on platform with wheels for ready use.

The platform brake answers a two-fold purpose, being large enough to admit of the operator standing upon it while working the Pump, and at the same time holding it firm and steady.

Suction and discharge always fitted for hose unless otherwise ordered. Stroke 4½ inches.

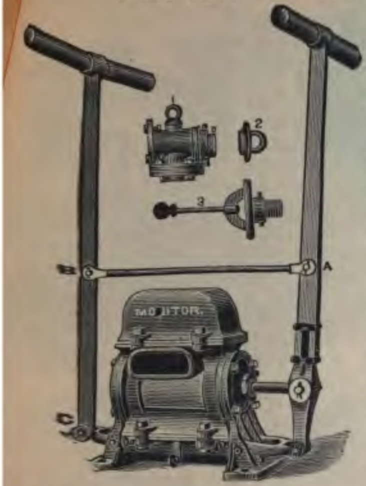
FIG. 774. (Weave.) **Prices.**

No.	Dia. Cyl.	Suc.	Dis.	Iron.	Brass.
2	2½ in.	1¼ in.	1 in.	$40.00	$90.00
4	3 "	1¼ "	1 "	45.00	95.00
8	4 "	1½ "	1 "	53.00	115.00

GOULDS "MONITOR" SUCTION AND FORCE PUMP COMBINED.

DOUBLE-ACTING. WITH BRASS-LINED CYLINDER.

FIG. 581. Patented September 5, 1876.



The cut exhibits our Double-Acting "Monitor" Suction Pump, for elevating large quantities of water from the holds of vessels, or from wells, cisterns, reservoirs, etc. It is essentially a Brass Pump, as the cylinder is lined with that metal, while the piston, piston rod, valves and their seats are made of the best composition metal. By the addition of a very few and inexpensive appliances this Pump can be converted into a very powerful engine, with a capacity of forcing a good-sized stream of water a long distance, thus combining in one machine, and at a little more cost, a Lifting and Force Pump when required. On shipboard this Pump can be set as Bilge Pumps usually are, with the iron suction pipe extending into the hold, and by very simple changes a Force Pump can be had for extinguishing fires, washing decks, etc. One Pump, therefore, performs the functions of two, and we guarantee that in either capacity it will give all the satisfaction that either of two Pumps would, designed especially for only one purpose.

Under the air chamber, which is easily detached, lie the upper valves, while by nscrewing the four nuts that secure the bed-plate to the Cylinder, the Cylinder can be aised and the lower valves are exposed. The position of the Pump or the pipes have, herefore, in no way to be disturbed should the valves get clogged and must be got at. We can most heartily commend this Pump to our friends. Both suction and discharge fitted for hose unless otherwise ordered, but we can fit for iron pipe if so desired.

FIG. 581. SUCTION AND BILGE PUMP. Sizes, Prices, Etc.

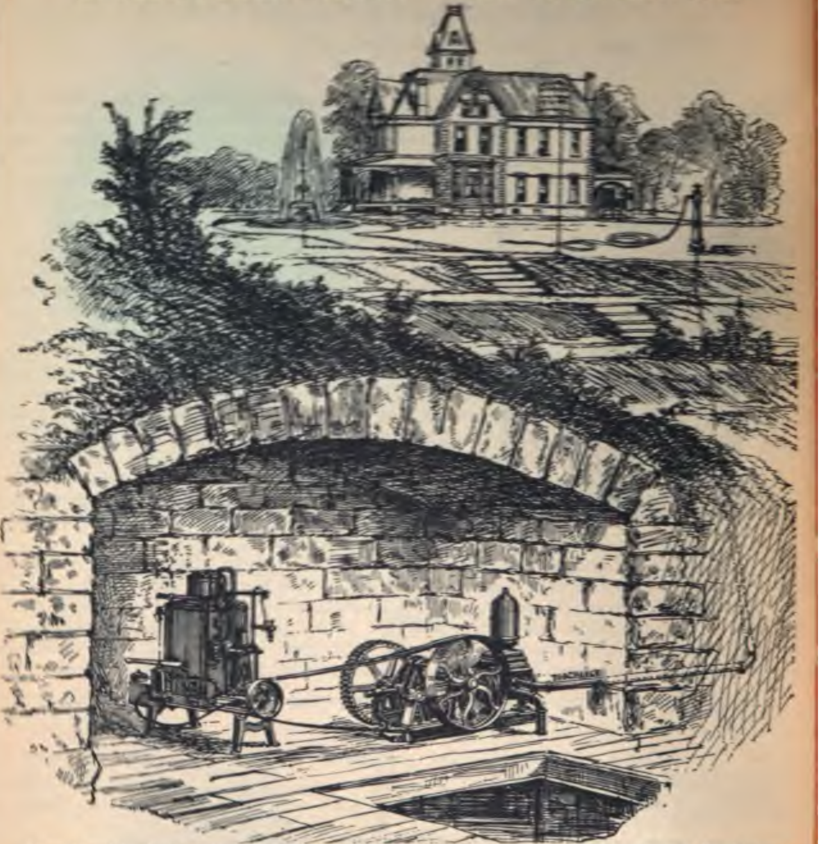
No.	Dia. Cyl.	Suc.	Dis.	Stroke.	Gal. per Rev.	Cipher.	Price.
16	6 in.	2½ in.	2 in.	5 in.	1 1-4	Melt	$50.00

FIG. 582. COMBINED PUMP. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Dis.	Stroke.	Gal. per Rev.	Cipher.	Price.
16	6 in.	2½ in.	2 in.	5 in.	1 1-4	Mend	$56.00

For Spring Piston (brass) add to list $8.00.

GOULDS POWER "ALERT" PUMP IN OPERATION.



Our Double-Acting "Alert" Force Pump is built and especially adapted for the use of high speed gas or oil engines, electric motors, etc., and the combination shown in our sketch is unsurpassed for parties wishing an independent pumping system about country residences, in workshops, warehouses, etc.

We solicit correspondence, and are prepared to furnish estimates on any engine or motor desired, with all necessary fittings, etc., for complete outfit.

See opposite page for description and prices of Pump.

GOULDS "ALERT" SUCTION AND FORCE PUMP, FOR BELT.

DOUBLE-ACTING. ON FRAME, WITH GEARING, ETC.

Fig. 785 is our Double-Acting "Alert" Force Pump, described on page 115, mounted on iron frame, with gearing, pulley, etc., for power use. The connecting rod is made of bronze, while the strong iron yoke is of such a form as to act as a guide rod to the Pump, and allow the crank and connecting rod to move up and down inside, without touching it. The Pump is geared 4 to 1, and for continual service the pulley shaft may run 160 to 180 revolutions per minute, and against 30 to 50 pounds pressure per square inch. The size pulleys given below could be varied to meet circumstances. Always fitted for wrought-iron pipe unless ordered to the contrary. For use with gas, kerosene, or with other high speed engines, this Pump is unexcelled. Stroke, 5 in.

In making inquiry or orders, always state duty intended or required of Pump.

FIG. 785.

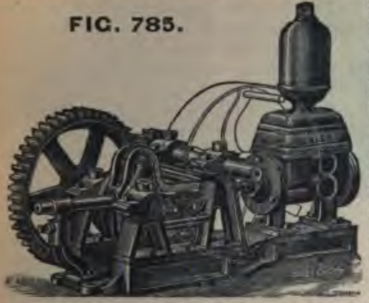


FIG. 785. Sizes, Prices, Etc.

No.	Dia. Cyl.	Double Suc.	Double Dis.	Gal. per Rev.	IRON.		BRASS.	
					Cipher.	Price.	Cipher.	Price.
4	3 in.	1¼ in.	1 in.	3-10	Warbler	$45.00	War	$80.00
6	3½ "	1½ "	1¼ "	2-5	Warbling	65.00	Warbeat	107.00
8	4 "	1½ "	1¼ "	1-2	Warcry	75.00	Warble	120.00

With tight and loose pulleys and outbored bearing, add to list, No. 4, $8.50; Nos. 6 and 8, $10.00.

GOULDS "CHALLENGE" SUCTION AND FORCE PUMP.

DOUBLE-ACTING. FOR HAND OR POWER USE.

FIG. 787.

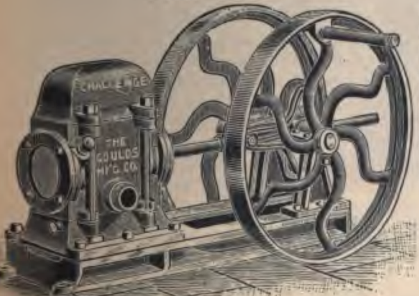


Fig. 787 represents our "Challenge" Force Pumps mounted on cast-iron bed plate, with yoke, guide, guide rod, and two balance wheels. When so ordered we can leave off either one or both of the balance wheels and substitute a pulley for power connection, or arrange with gears, same as shown in **Fig. 785.**

Always fitted for wrought-iron pipe, unless otherwise ordered. Stroke, 4½ in.

FIG. 787. (Weaver.) **Price.**

No.	Dia. Cyl.	Suc.	Dis.	Iron.	Brass.
8	4 in.	1½ in.	1¼ in.	$71.00	$130.00

GOULDS "CHALLENGE" D. A. SUCTION AND FORCE PUMP.

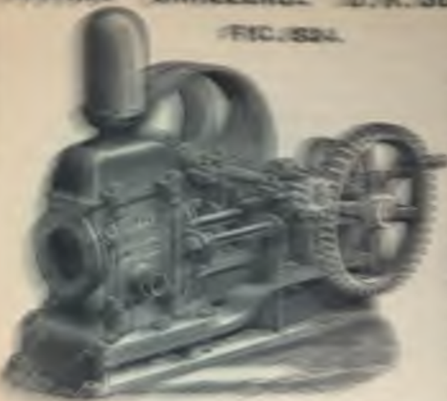


FIG. 824.

Fig. 824 is our "Challenge" Force Pump mounted on strong iron frame with gearing, tight and loose pulleys, etc., and is adapted for feeding boilers or working in any place or capacity under heavy pressure. The Pump is geared 4 to 1, and for continuous service the pulley shaft may be run between 140 to 160 revolutions per minute, and against 75 pounds pressure per square inch. For feeding boilers, the piston should be made entirely of metal, for which an extra charge would be made. Always fitted for wrought-iron pipe unless otherwise ordered. Stroke 4½ inches. Nos. 2, 4 and 8 ha outboard bearing to pulleys.

No.	Dia. Cyl.	Suc.	Dis.	Gal. per Rev.	Cipher.	Price.
[illegible]	2½ in.	1¼ in.	1 in.	[illegible]	Waffle	$75.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Waft	80.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Waftage	85.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Waypane	115.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Wayside	135.00

GOULDS "CHALLENGE" D. A. SUCTION AND FORCE PUM

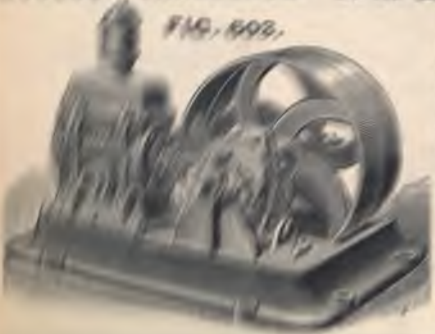


FIG. 802.

The cut shows our "Challeng Pump mounted on cast-iron bed pla with turned tight and loose pulleys, inches face and 18 inches diamete The piston is worked from a crank wi a link motion, the crank pin working a solid gun-metal box, while a guid on under side of the link prevents a undue wear of the piston-rod and stuff ing box. The Pump may be run 25 t 30 revolution per minute, and agains 50 pounds pressure per square inch. Stroke, 4½ inches. *In making inquiry or orders, always state duty intended or required of Pump.*

No.	Dia. Cyl.	Suc.	Dis.	Gal. per Rev.	IRON.		BRASS.	
					Cipher.	Price.	Cipher.	Price.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Mode	$70.00	Voider	$120.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Mold	75.00	Voiding	135.00

ULDS "CHALLENGE" D. A. SUCTION AND FORCE PUMP.

FIG. 604.

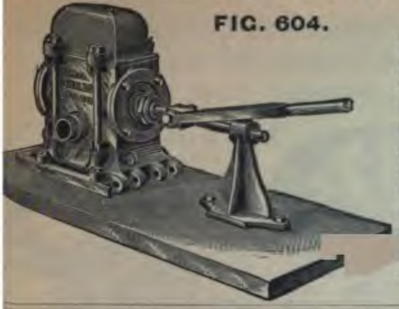


Fig. 604 represents our "Challenge" Pump, mounted on plank, with pitman, guide, and guide rod for attaching to face plate and crank pin, by means of connecting rod. Railroad companies use this Pump extensively at their watering stations, operating it by horse power. They can be run up to a maximum of 75 to 80 revolutions per minute, though 40 or 50 would be better. Both suction and discharge fitted for gas pipe, unless otherwise ordered.

ia. Cyl.	Suc.	Dis.	Stroke.	Gal. per Rev.	IRON.		BRASS.	
					Cipher.	Price.	Cipher.	Price.
½ in.	1¼ in.	1 in.	4½ in.	1-5	Mole	$30.00	Vended	$80.00
"	1¼ "	1 "	4½ "	3-10	Molt	30.00	Vendee	80.00
"	1½ "	1¼ "	4½ "	1-2	Monk	32.00	Vender	95.00
"	2 "	1½ "	5 "	7-8	Mood	50.00	Vendible	120.00
"	2½ "	2 "	5 "	1 1-4	Moon	55.00	Vendibly	170.00

"CHALLENGE" SUCTION AND FORCE PUMP.

FIG. 577.

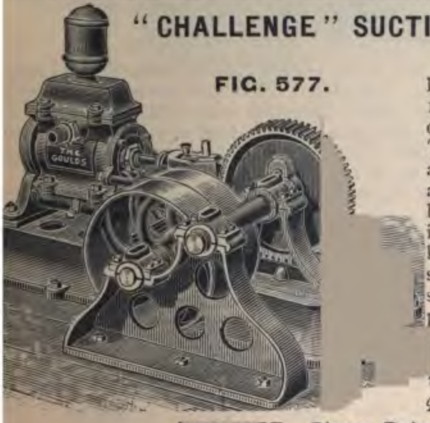


Fig. 577 is our largest "Challenge" Pump (see **Fig. 494**, page 115, for full description), arranged on an iron frame for power use. The gears are cut, and are 6 in. and 16 in. diameter respectively, although their relative sizes could be changed if desired. The connecting rod has strap joints with gib and key, and the cross head runs on two substantial guides. The pulley shaft may be run 150 revolutions per minute and against 75 pounds pressure.

In making inquiry or orders, always state duty intended or required of Pump.

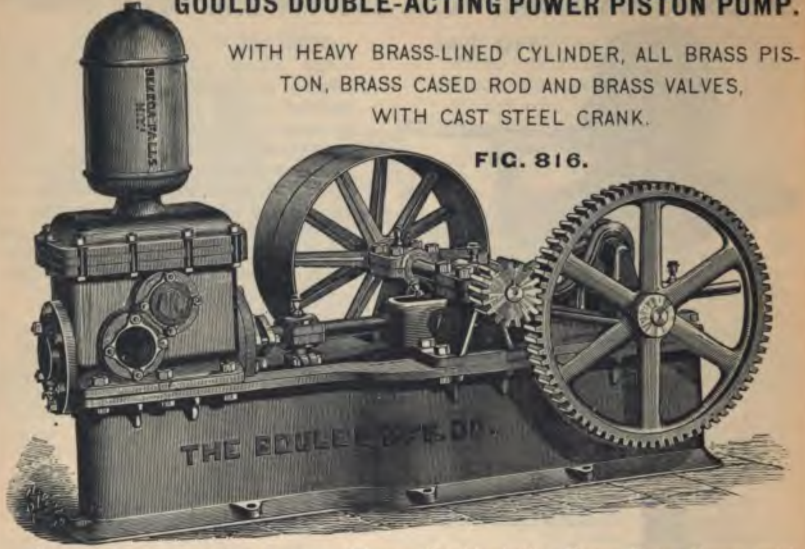
FIG. 577. Sizes, Prices, Etc.

a. Cyl.	Suc.	Dis.	Stroke.	Gal. per Rev.	Dia. Pulleys.	Face Pulleys.	Cipher.	Price.
in.	*2½ in*	*2 in.*	5 in.	1 1-4	18 in.	5 in.	Less	$225.00

GOULDS DOUBLE-ACTING POWER PISTON PUMP.

WITH HEAVY BRASS-LINED CYLINDER, ALL BRASS PISTON, BRASS CASED ROD AND BRASS VALVES, WITH CAST STEEL CRANK.

FIG. 816.


SENECA FALLS N.Y.
THE GOULDS MFG. CO.

The cut shows our extra strong and heavy Double-Acting Power Piston Pump, with Brass Lined Cylinder, Brass Piston, Brass Cased Rod and Brass Valves, with Cast Steel Crank and Pitman Yoke, for mills, factories, small villages, etc., etc. It is mounted on a substantial iron frame and geared 5 to 1, with tight and loose pulley for belt connection, is ready for immediate service in case of fire, or can be constantly used for forcing water against a pressure up to 150 pounds per square inch.

We always recommend a vacuum chamber in case of long suction pipe, which can be easily made by placing a tee in it as near Pump as convenient, and screwing into the latter a five or six foot piece of gas pipe capped at upper end. By an ingenious device the wear of piston can be made good with very little trouble.

Below we give sizes, prices, etc., and about the speed it should be run for daily use, although this could be increased in case of emergency, with proportionate results. To reduce the friction in long lines of pipe, we suggest the use of larger pipe, and the suction and discharge flanges can be fitted for any desired size. Pump occupies floor space 7 ft. x 4 ft.

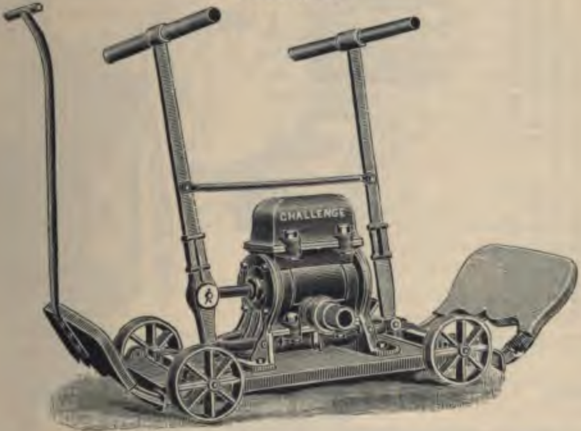
FIG. 816. Sizes, Prices, Etc.

Dia. Cyl.	Stroke.	Speed-strokes per Minute.	Gal. per Stroke.	Suc.	Dis.	Pulleys, Each.	Cipher.	Price.
8 in.	10 in.	50 to 60	2.15	4 in.	4 in.	27 x 6 in.	Wadmaal	$525.00
10 "	10 "	50 to 60	3.40	6 "	4 "	30 x 6 "	Wadsett	575.00
8 "	12 "	50 to 60	2.61	4 "	4 "	27 x 6 "	Wady	600.00
10 "	12 "	50 to 60	4.08	6 "	4 "	30 x 6 "	Wafer	650.00

GOULDS "CHALLENGE" SUCTION AND FORCE PUMP.

WITH BRASS-LINED CYLINDER AND DOUBLE LEVERS, MOUNTED ON PLATFORM WITH WHEELS.

FIG. 770.



The above cut represents our larger size Double-Acting "Challenge" Pump, mounted on platform with wheels, so they can readily be moved from place to place.

It will also be remembered that this Pump is brass lined and provided with brass piston rod and composition bronze valves and valve seats, making it capable of resisting the effects of salt water or acids, besides being almost indestructible. The double platform brakes answer a twofold purpose, being large enough to admit of the operators standing upon them while working the Pump, and holding it firm and steady.

Suction and discharge always fitted for hose, unless otherwise ordered.

Stroke, 5 inches.

FIG. 770. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Dis.	Gal. per Rev.	IRON.		BRASS.	
					Cipher.	Price.	Cipher.	Price.
12	5 in.	2 in.	1½ in.	7-8	Vial	$70.00	Vocative	$150.00
16	6 "	2½ "	2 "	1 1-4	Viand	75.00	Vocule	200.00

For Spring Piston (brass) add to list No. 12 $6.00, No. 16, $8.00.

Our "Deluge" Pumps for hand and power use, as illustrated on this and following pages, are designed for pumping large quantities of water from ships' holds, coffer dams, mines, quarries, etc., and will pump water containing sand, gravel, mud and sewage matter without choking.

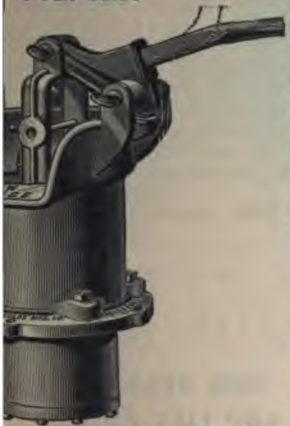
Capacity of different sizes from 3,000 to 4,000 gallons per hour. The Hand Pumps are described on pages 127 and 128, and Power Pumps on page 129.

ULDS "NEW DELUGE" SUCTION AND LIFT PUMP.

FOR MOVING LARGE QUANTITIES OF WATER.

829 represents our Improved "New Deluge" Pump, which is designed for r small vessels of not more than 15 to 20 feet depth of hold; for contractors to pump large quantities of water from excavations, etc., for irrigation or any other purpose where a compact and capacious Pump is desired.

FIG. 829.



The cylinder is lined with brass, the valves rubber faced and the lever socket made at such an angle that the bent wrought-iron lever when put in one side up is right for ordinary pumping, and by simply changing it to the other side up it becomes a vertical lever. This lever may also be worked from three different points, as shown by lugs in our cut.

The Pump has large valves accessible and removable by hand from above, while to the bottom of the base is bolted a flange which may be screwed for any size pipe ordered, or changed for other sizes if desired.

FIG. 829. Sizes, Prices, Etc.

Dia.Cyl.	Suc.	Stroke.	Gal. per Stroke.	Cipher.	Price.
6 in.	2½ in.	4 in.	1-2	Waken	$23.00
8½ "	3 "	6 "	1 1-2	Waking	30.00

ULDS "NEW DELUGE" SUCTION AND LIFT PUMP.

WITH SIDE INLET.

FIG. 836.

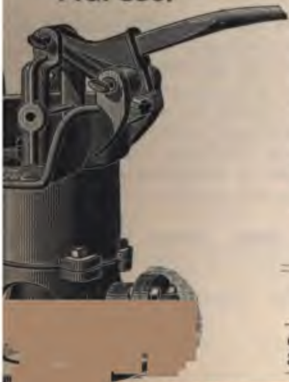


Fig. 836 represents our "New Deluge" Pump described above, arranged with elevated base to be used above deck or foundation where it is desired to use hose suction or more convenient to make pipe connections in this manner. The suction flange is fitted for sizes of wrought iron pipe given below, unless otherwise ordered, or can be cut hose gauge to take our regular suction half hose coupling which are furnished at extra price.

FIG. 836. Sizes, Prices, Etc.

Dia. Cyl.	Suc.	Stroke.	Gal. per Stroke.	Cipher.	Price.
6 in.	2½ in.	4 in.	1-2	Weaken	$26.0
8½ "	3 "	6 "	1 1-2	Weakener	31.0

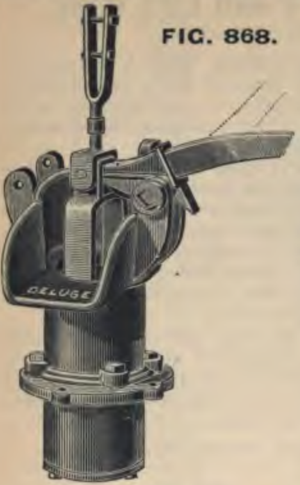


FIG. 868.

GOULDS "NEW DELUGE" SUCTION AND LIFT PUMP.

AS ADAPTED TO MANUAL OR WIND POWER.

Fig. 868 represents our "New Deluge" Pump, described on previous page, under style of **Fig. 829,** with the addition of a heavy forked rod, adapting it for power as well as hand use. This forked rod may be connected to wood rod of Wind Mill, walking beam, or other power, and operated in any place where water is not more than 25 feet distance, for irrigation, in excavations, etc. The suction plate is bolted to base and may be screwed for other sizes of pipe than those given below, if desired.

FIG. 868. Sizes, Prices, Etc.

Dia. Cyl.	Suc.	Stroke.	Gal. per Stroke.	Cipher.	Price.
6 in.	2½ in.	4 in.	1-2	Wayward	$26.50
8½ "	3 "	6 "	1 1-2	Waywise	31.50

FIG. 869.

GOULDS "NEW DELUGE" SUCTION AND LIFT PUMP.

FOR MANUAL OR WIND POWER, WITH SIDE INLET.

Fig. 869 is another modification of our "New Deluge" pump arranged with elevated base for attaching hose or wrought-iron pipe at side. In many places and for all temporary work this style of pump is especially adapted, as suction connection can be made and removed without changing position of pump. Unless otherwise ordered we cut suction flange for sizes of wrought-iron pipe given below, but can cut to take our hose coupling if desired.

FIG. 869. Sizes, Prices, Etc.

Dia. Cyl.	Suc.	Stroke.	Gal. per Stroke.	Cipher.	Price.
6 in.	2½ in.	4 in.	1-2	Waywiser	$27.50
8½ "	3 "	6 "	1 1-2	Waywode	32.50

GOULDS "NEW DELUGE" SUCTION AND LIFT PUMP.

WITH CRANK AND GEARING FOR BELT POWER.

FIG. 870.

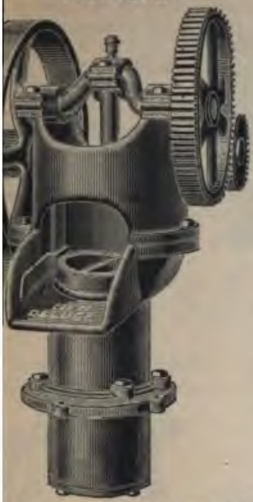


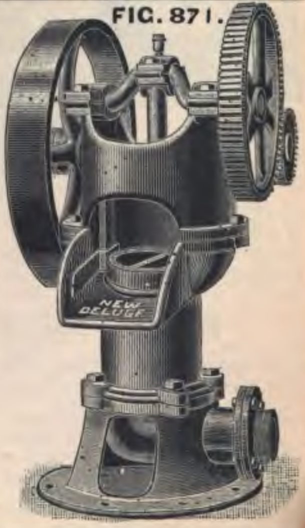
Fig. 870 represents our "New Deluge" Pump, described on preceding pages, surmounted with a strongly-bolted, heavy frame, supporting bearing boxes, with crank shaft, spur and pinion gears, pulley, etc., the whole making a most compact and serviceable device, capable of raising and discharging from 3,000 to 4,000 gallons of water per hour.

The Cylinder is brass lined, the valves rubber faced and accessible by hand, although they will pass water containing gravel, sand, sticks, etc., etc., without clogging. The spur and pinion gears are in proportion of 4 to 1, and balance wheel can be changed as desired to give 40 to 50 strokes to plunger per minute.

FIG. 870. Sizes, Prices, Etc.

Dia. Cyl.	Suc.	Stroke.	Gal. per Stroke.	Cipher.	Price.
6 in.	2 ½ in.	6 in.	3-4	Weakeyed	$57.00
8½ "	3 "	6 "	1 1-2	Weakling	67.00

FIG. 871.



ULDS "NEW DELUGE" PUMP.

ITH CRANK, ETC., WITH SIDE INLET.

. **871** is substantially the same as **Fig. 870**, bed above, except it has a high base, which e fitted for either wrought-iron pipe or hose n.

illustrated on page 126 this Pump is admira- lapted for contractor's use in pumping out ations, coffer dams, quarries, etc., or for any se where it is only desired to raise and deliver at surface.

se and coupling furnished, if desired, at t rates.

FIG. 871. Sizes, Prices, Etc.

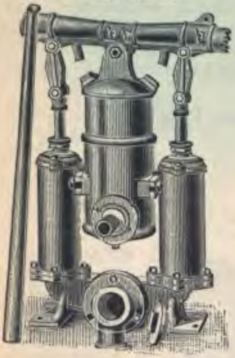
	Suc.	Stroke.	Gal. per Stroke.	Cipher.	Price.
.	2½ in.	6 in.	3-4	Weakly	$58.00
	3 "	6 "	1 1-2	Weakness	68.00

GOULDS TWO-CYLINDER SUCTION AND FORCE PUMPS.

Fig. 283 exhibits a new and very superior Force Pump, with double Cylind wood levers, etc., and may be worked by hand or machinery, while **Fig. 284** is the s Pump with folding brakes, which are large enough to admit four or six men work upon them, They are made with brass-cased piston rods, brass plunger, valves stuffing boxes.

The valve at the bottom of the Cylinder is double and *entirely new* in its const tion, and can be readily tripped or opened by pressing down the lever until it stri the top of the air chamber.

FIG. 283.



The *peculiar advantage* of this DOUBLE VALVE over the ordinary one is, that w with the *single valve* the pressure of the column of wate so great as to make it difficult (and in Pumps of large nearly impossible) to trip it, yet by this arrangement additional leverage obtained by placing a *small valve* in top of the *main valve* renders the process perfectly ea and always certain.

The Pump is simple in its construction — not liable get out of order — and by the *directness of its action* a consequent *freedom from friction* is a most *efficient* a *powerful Pump.*

We make them with Iron Cylinders or with Brass Cylinders, with all the entire *working portions* of the Pump of the same material.

Stroke and capacity same as Fig. 285 on opposite page.

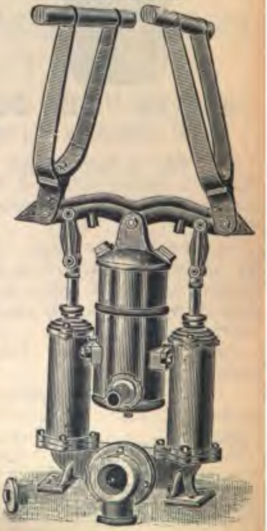
FIG. 283.
Sizes, Prices, Etc.

No.	Dia. Cyls.	Suc. for Pipe.	Dis. for Hose.	IRON CYLS. Cipher.	IRON CYLS. Price.	BRASS CYLS. Cipher.	BRASS CYLS. Price.
2	2½ in.	2 in.	1¼ in.	Daze	$38.00	Debar	$60.00
4	3 "	2 "	1¼ "	Dazzle	40.00	Debase	65.00
6	3½ "	2½ "	1¼ "	Deaf	47.00	Debit	78.00
8	4 "	2½ "	1½ "	Deal	55.00	Debt	95.00
10	4½ "	3 "	2 "	Dean	70.00	Debut	115.00
16	6 "	4 "	3 "	Dear	110.00	Decay	170.00

FIG. 284. Sizes, Prices, Etc.

No.	Dia. Cyls.	Suc. for Pipe.	Dis. for Hose.	IRON CYLS. Cipher	IRON CYLS. Price.	BRASS CYLS. Cipher.	BRASS CYLS. Price.
2	2½ in.	2 in.	1¼ in.	Deck	$58.00	Deep	$80.00
4	3 "	2 "	1¼ "	Decker	60.00	Deeply	85.00
6	3½ "	2½ "	1¼ "	Decoy	67.00	Deer	98.00
8	4 "	2½ "	1½ "	Decry	75.00	Defer	115.00
10	4½ "	3 "	2 "	Deed	90.00	Defix	135.00
16	6 "	4 "	3 "	Deem	130.00	Deft	190.00

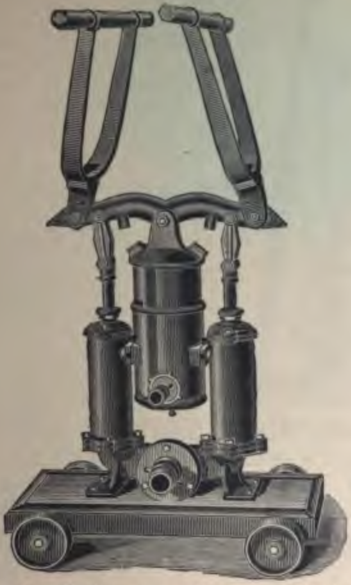
FIG. 284.



GOULDS TWO-CYLINDER SUCTION AND FORCE PUMP.

WITH FOLDING BRAKES, ON PLATFORM WITH WHEELS.

FIG. 285.



This is our **Fig. 284,** described on opposite page, bolted to a platform on wheels, r convenience of transporting from place to place. With a length of spiral suction se attached to the Pump it is always in readiness to be carried to the place of cessity, and in case of fire will be found invaluable, for it is a very powerful engine en the brakes are fully equipped.

Stroke 6 inches, except No. 16, which has 8 inches stroke.

FIG. 285. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. for Hose.	Dis. for Hose.	Gal. per Rev.	IRON CYLS.		BRASS CYLS.	
					Cipher.	Price.	Cipher.	Price.
2	2½ in.	2 in.	1¼ in.	1-4	Defy	$ 68.00	Delay	$ 90.00
4	3 "	2 "	1¼ "	3-8	Visional	70.00	Visit	95 00
6	3½ "	2½ "	1¼ "	1-2	Deify	77.00	Delf	108.00
8	4 "	2½ "	1½ "	2-3	Deign	85.00	Dell	125.00
10	4½ "	3 "	2 "	7-8	Deist	100.00	Delve	145.00
16	6 "	4 "	3 "	2	Deity	140.00	Demi	200.00

GOULDS TWO-CYLINDER SUCTION AND FORCE PUMPS.

OPEN TOP, WITH WOOD LEVERS.

FIG. 518.

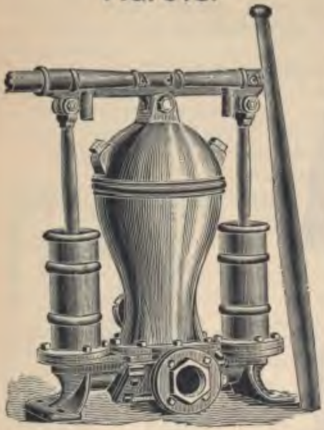


Fig. 518 is a powerful Two-Cylinder Pump, which is double-acting in operation, simple and compact in build, all parts being readily accessible, and can be operated by wood levers or power as desired. The suction plate is always fitted for wrought-iron pipe, and the discharge opening has a brass tube for wiring on hose. Can fit both ends for wrought-iron pipe, or both ends for hose, if ordered.

FIG. 518. (Wedding.) **Sizes, Prices, Etc.**

No.	Dia. Cyls.	Suc.	Dis.	Iron Cyls.	Brass Lined Cyls.	Brass Cyls.
4	3 in.	1½ in.	1¼ in.	$40.00	$48.00	$65.00
6	3½ "	2 "	1½ "	45.00	57.00	78.00
8	4 "	2½ "	2 "	55.00	70.00	95.00
10	4½ "	2½ "	2 "	67.00	86.00	115.00
12	5 "	2½ "	2 "	82.00	100.00	140.00
16	6 "	4 "	2½ "	110.00	140.00	170.00

GOULDS TWO-CYLINDER SUCTION AND FORCE PUMP.

OPEN TOP, WITH WROUGHT-IRON EXTENSION LEVERS.

FIG. 520.

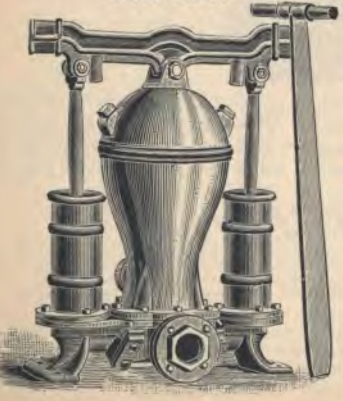


Fig. 520 represents our Two-Cylinder Suction and Force Pump described above arranged with wrought-iron extension levers. When these levers are put in place, they afford room for many men to work at, and render this Pump a most powerful engine for forcing water on fires, or supplying it for many uses about factories, warehouses, wharves, etc.

FIG. 520. (Waterfly.) **Sizes, Prices, Etc.**

No.	Dia. Cyls.	Suc.	Dis.	Iron Cyls.	Brass Lined Cyls.	Brass Cyls.
4	3 in.	1½ in.	1¼ in.	$50.00	$58.00	$75.00
6	3½ "	2 "	1½ "	55.00	67.00	88.00
8	4 "	2½ "	2 "	65.00	80.00	105.00
10	4½ "	2½ "	2 "	77.00	96.00	125.00
12	5 "	2½ "	2 "	92.00	110.00	150.00
16	6 "	4 "	2½ "	120.00	150.00	180.00

Stroke and capacity same as Fig. 519, on opposite page.

GOULDS TWO-CYLINDER SUCTION AND FORCE PUMP.

OPEN TOP, WITH WROUGHT-IRON FOLDING BRAKES.

FIG. 519.

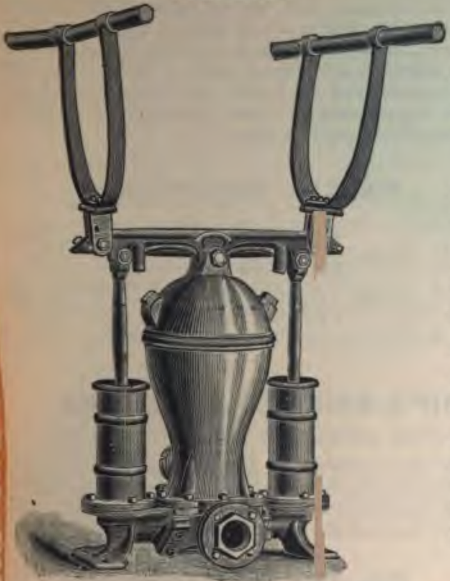


Fig. 519 represents Pump described on opposite page, with folding brakes.

When not in use the turned steel pin can be removed and the brakes folded up out of the way, as illustrated by cut. Six to eight men can be accommodated on these brakes easily, and manipulated by such a power this engine will perform good service, extinguishing fires, and in many other useful capacities on steamboats, wharves, in factories, etc., etc. The suction plate is always fitted for wrought-iron pipe and the discharge for hose, unless otherwise ordered.

FIG. 519. Sizes, Prices, Etc.

No.	Dia. Cyls.	Suc.	Dis.	Gal. per Rev.	IRON CYLS.		BRASS LINED CYLS		BRASS CYLS.	
					Cipher.	Price.	Cipher.	Price.	Cipher.	Price.
4	3 in.	1½ in.	1¼ in.	2-5	Hove	$60.00	Hunt	$68.00	Hymn	$85.00
6	3½ "	2 "	1½ "	1-2	Hue	65.00	Hurl	77.00	Ibex	98.00
8	4 "	2½ "	2 "	7-8	Huge	75.00	Hurt	90.00	Ibis	115.00
10	4½ "	2½ "	2 "	1 1-10	Hulk	87.00	Hush	106.00	Ice	135.00
12	5 "	2½ "	2 "	1 3-8	Hum	102.00	Husk	120.00	Idea	160.00
16	6 "	4 "	2½ "	1 3-4	Hump	130.00	Hut	160.00	Ides	190.00

We can furnish this Pump mounted on platform with wheels at $10.00 extra list. No. 16 is fitted with gun metal valves and valve seats, and has 7 inch stroke. Nos. 4 and 6 have 6½ inch stroke, Nos. 8, 10 and 12 have 8 inch stroke.

GOULDS IMPROVED SHIP'S MAIN AND BILGE PUMP.

WITH WOOD LEVERS.

The cut represents our improved Ship's Main and Bilge Pump for use upon shipboard, in mines, and upon plantations for irrigation, It has a reversible top, heavy strong bed plate, with brass valve seats cast in the base, poppet valves of new design; the suction pipe is attached to the vacuum chamber above the valves, so that they are always submerged; the plungers are always made of brass, with large waterways, and in Pumps with brass lined Cylinders we put brass valve seats always fitted for 3-inch wrought-iron suction pipe.

FIG. 578.

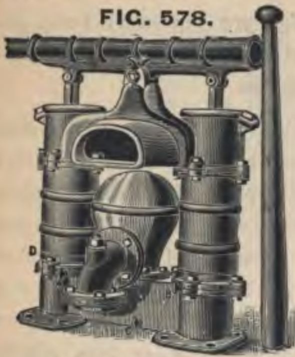


FIG. 578. Sizes, Prices, Etc.

Dia. Cyls.	Stroke	Gal per Rev.	IRON CYLS.		BRASS LINED CYLS.	
			Cipher.	Price.	Cipher.	Price.
5½ in.	6½ in.	1 1-3	Lest	$60.00	Lid	$80.00
5½ "	8 "	1 5-8	Let	60.00	Lien	80.00
6 "	8 "	2	Levy	70.00	Maw	90.00

GOULDS IMPROVED SHIP'S MAIN AND BILGE PUMP.

WITH WROUGHT-IRON EXTENSION LEVERS.

Fig. 579 represents our improved Ship's Main and Bilge Pump, fully described above, arranged with wrought-iron extension levers, so that a large force of men can be employed in operating it. We also furnish two and three turn brass cocks with elbows, where a suction pipe is wanted for each side of the keelson, always fitted for 3-inch wrought-iron suction pipe.

FIG. 579.

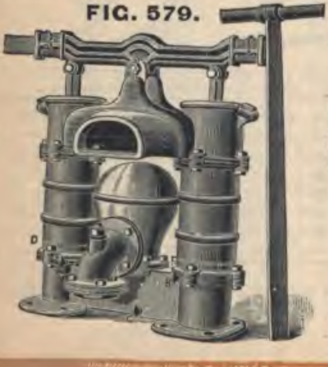


FIG. 579. Sizes, Prices, Etc.

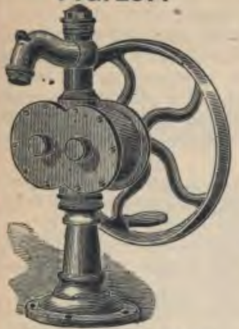
Dia. Cyls.	Stroke	Gal. per Rev.	IRON CYLS.		BRASS LINED CYLS.	
			Cipher.	Price.	Cipher.	Price.
5½ in.	6½ in.	1 1-3	May	$65.00	Mead	$85.00
5½ "	8 "	1 5-8	Maze	65.00	Meal	85.00
6 "	8 "	2	Mazy	75.00	Mean	95.00
8 "	8 "	3 1-2	Mazer	135.00	Meant	160.00

Brass 2-way cock, with 2 elbows for 2 suction pipes,	$18.00 net.
Brass 3-way cock, with 3 elbows for 3 suction pipes,	20.00 net.

Flanges of cock have oblong holes in them, so the suction pipes can be pushed one side or the other, according to emergency.

GOULDS ROTARY FORCE PUMP.

FIG. 297.



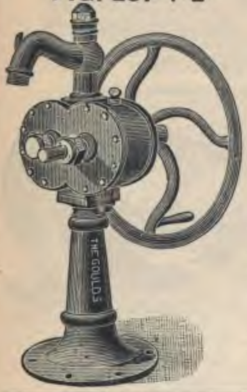
WITH LIGHT BALANCE WHEEL FOR MANUAL POWER.

Fig. 297 represents one of our celebrated Hand Rotary Force Pumps. They are adapted for every place or purpose where a Lift and Force Pump can be used, and will pump from a well or cistern, or can be moved to any place where water is not more than 15 to 20 feet distance and operated instantly. They will pump equally as well hot water by the addition of a metallic lower valve. For wine or liquor a bronze Pump should always be used, as it is unaffected by the action of acids. *Our Rotary Pumps are known in every country of the world as the very best made. They have no competitors, are alone reliable, and always give satisfaction.*

FIG. 297. Sizes, Prices, Etc.

No.	Suc.	Dis.	Dia. Balance Wheel.	Gal. per Min. 100 rev.	IRON.		BRONZE.	
					Cipher.	Price.	Cipher.	Price.
1	1¼ in	1 in	14½ in.	13	Ditty	$19.00	Dizzy	$41.00
2	1¼ "	1 "	14½ "	14	Dive	22.00	Dock	46.00
3	1½ "	1¼ "	14½ "	17	Divan	26.00	Dodge	51.00

FIG. 297 1-2



GOULDS LARGE ROTARY FORCE PUMP.

WITH HEAVY BALANCE WHEEL FOR MANUAL POWER.

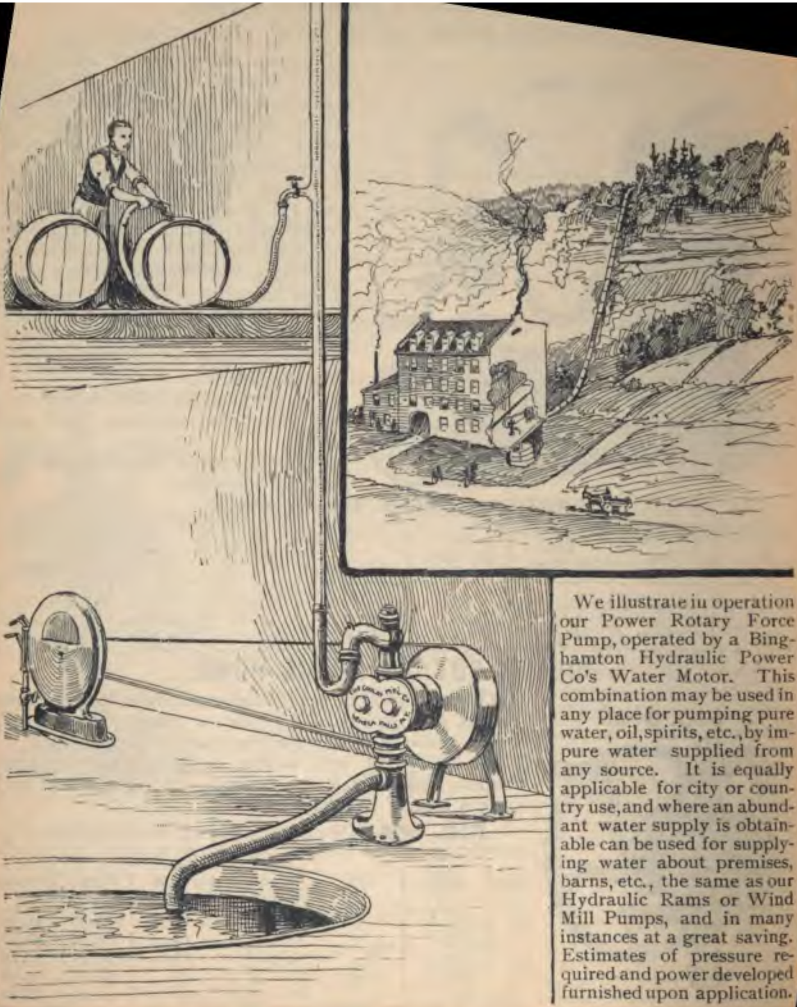
Fig. 297 1-2 shows a Hand Rotary Pump of large capacity and power.

The cam shaft is long enough to put another fly wheel on, so that four men can work if necessary. Brass plugs are at top and bottom of case for letting out the water in cold weather. After taking out the plugs reverse the cams two or three times around, so as to get the water down from the top.

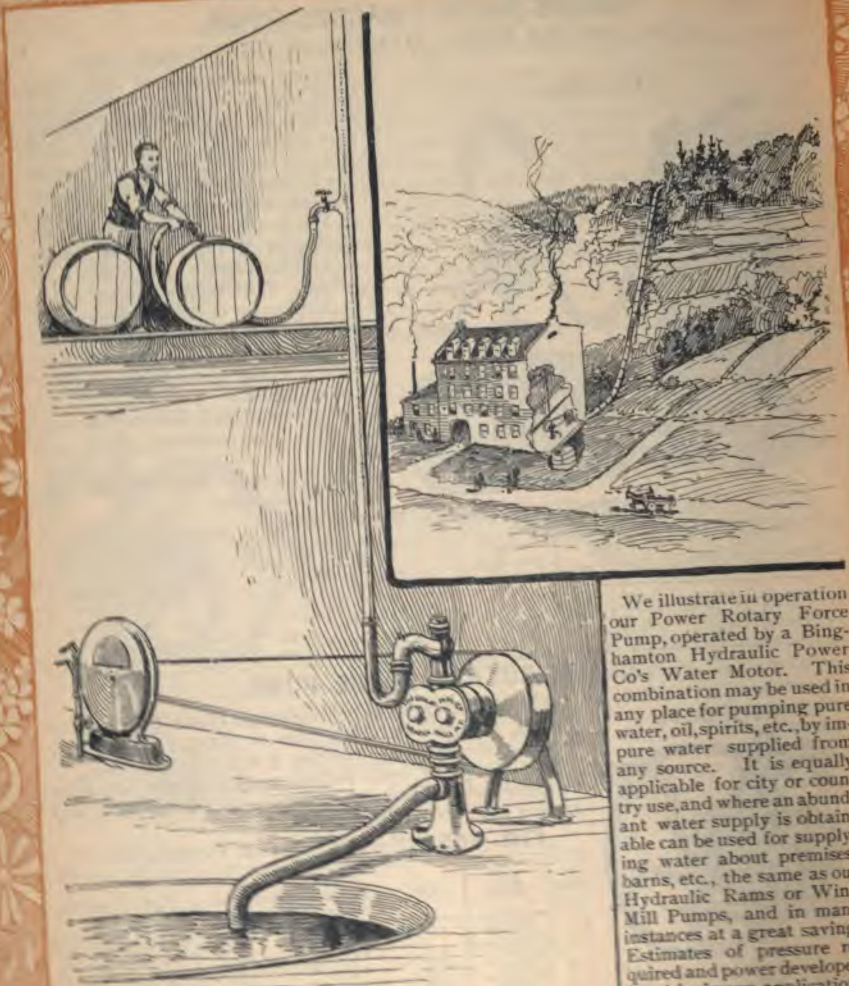
We would also advise the use of a check valve at end of suction pipe as it keeps the pipe always filled and renders the pump ready for use with a single revolution.

FIG. 297 1-2. Sizes, Prices, Etc.

No.	Suc.	Dis.	Dia. Balance Wheel.	Gal. per Min. 100 Rev.	IRON.		BRONZE.	
					Cipher.	Price.	Cipher.	Price.
1	1¼ in.	1 in.	20 in.	13	Doe	$20.00	Dole	$42.00
2	1¼ "	1 "	20 "	14	Doff	23.00	Dome	47.00
3	1½ "	1¼ "	20 "	17	Dog	27.00	Don	52.00
4	1½ "	1½ "	20 "	27	Dogma	35.00	Done	65.00
4A	1½ "	1½ "	36 "	27	Dogskin	39.00	Doit	69.00
5	2 "	2 "	20 "	36	Doing	40.00	Doom	75.00
5A	2 "	2 "	36 "	36	Doily	44.00	Dolce	79.00
6	2 "	2 "	36 "	45	Voidness	50.00	Voiture	100.00


The Goulds Mfg. Co.
Seneca Falls N.Y.

We illustrate in operation our Power Rotary Force Pump, operated by a Binghamton Hydraulic Power Co's Water Motor. This combination may be used in any place for pumping pure water, oil, spirits, etc., by impure water supplied from any source. It is equally applicable for city or country use, and where an abundant water supply is obtainable can be used for supplying water about premises, barns, etc., the same as our Hydraulic Rams or Wind Mill Pumps, and in many instances at a great saving. Estimates of pressure required and power developed furnished upon application.



We illustrate in operation our Power Rotary Force Pump, operated by a Binghamton Hydraulic Power Co's Water Motor. This combination may be used in any place for pumping pure water, oil, spirits, etc., by impure water supplied from any source. It is equally applicable for city or country use, and where an abundant water supply is obtainable can be used for supplying water about premises, barns, etc., the same as our Hydraulic Rams or Wind Mill Pumps, and in many instances at a great saving. Estimates of pressure required and power developed furnished upon application.

GOULDS ROTARY FORCE PUMP.

ARRANGED WITH SIDE SUCTION FOR MANUAL POWER.

FIG. 821.

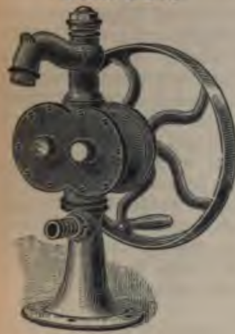


Fig. 821 represents a new Hand Rotary Force Pump arranged with side suction for hose or lead pipe. Unlike other Rotary Pumps, which are tapped for wrought iron pipe that must pass up through bottom of standard or base, this one is conveniently arranged for hose suction at side. Many reasons will suggest themselves of the practical utility and convenience of this feature, as the suction hose may be dropped in any position readily, and as readily removed to another for immediate use.

FIG. 821. (Watergod.) **Sizes, Prices, Etc.**

No.	Suc.	Dis.	Dia. Balance Wheel.	Gal. per Min. 100 Rev.	Iron.	Bronze.
1	1¼ in.	1 in.	14½ in.	13	$20.00	$ 42.00
2	1¼ "	1 "	14½ "	14	23.00	47.00
3	1½ "	1¼ "	14½ "	17	27.25	52.25
4	1½ "	1½ "	20 "	27	36.25	66.25
5	2 "	2 "	20 "	36	41.75	76.75
6	2 "	2 "	36 "	45	51.75	101.75

GOULDS ROTARY FORCE PUMP.

WITH OUTSIDE BEARING AND PULLEY FLY WHEEL FOR POWER.

Fig. 819 represents our new Rotary Force Pump with outside bearing and pulley fly wheel for power use. This Pump may be used for any of the many services of rotaries — for pumping hot or cold water, wines, liquors, etc., and is especially arranged for power use at a moderate expense. These Pumps are admirably adapted for use with high speed gas, kerosene, or other engines, as the height of outside bearing admits of the use of a very large pulley to compensate for speed of engine.

Always fitted for wrought iron suction pipe.

FIG. 819.

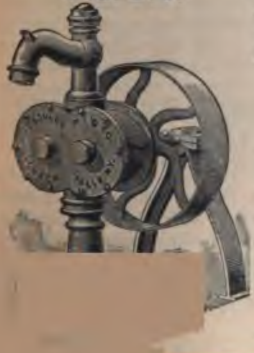
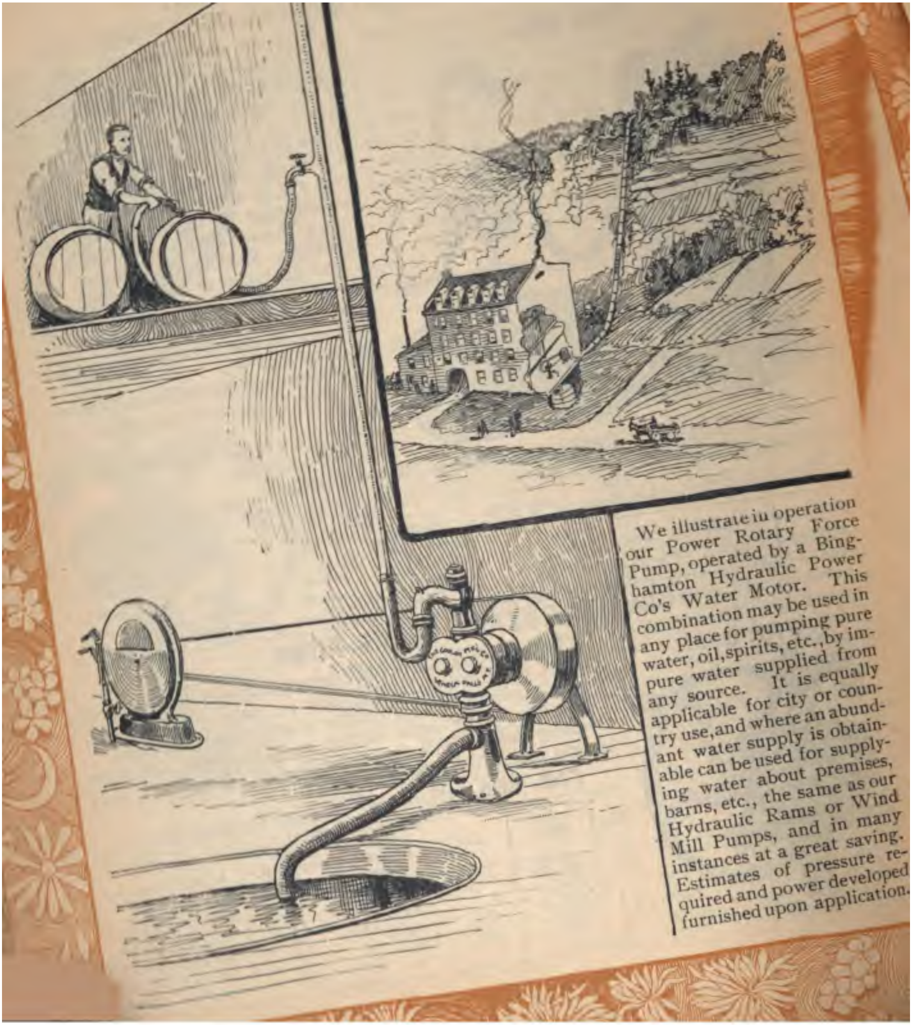


FIG. 819. (Waterhen.) **Sizes, Prices, Etc.**

No.	Suc.	Dis.	Pulley.	Gal. per Min. 100 Rev.	Iron.	Bronze.
1	1¼ in.	1 in.	18 x 4 in	13	$25.00	$ 47.00
2	1¼ "	1 "	18 x 4 "	14	28.00	52.00
3	1½ "	1¼ "	18 x 4 "	17	32.00	57.00
4	1½ "	1½ "	36 x 4 "	27	45.00	75.00
5	2 "	2 "	36 x 4 "	36	50.00	85.00
6	2 "	2 "	36 x 4 "	45	60.00	110.00


THE GOULDS MFG. CO.
SENECA FALLS N.Y.

We illustrate in operation our Power Rotary Force Pump, operated by a Binghamton Hydraulic Power Co's Water Motor. This combination may be used in any place for pumping pure water, oil, spirits, etc., by impure water supplied from any source. It is equally applicable for city or country use, and where an abundant water supply is obtainable can be used for supplying water about premises, barns, etc., the same as our Hydraulic Rams or Wind Mill Pumps, and in many instances at a great saving. Estimates of pressure required and power developed furnished upon application.

GOULDS POWER ROTARY FORCE PUMPS.

The marked efficiency and many advantages of the Power Rotary Force Pump over Piston Pumps for distributing large quantities of water are too well understood and recognized to-day to require extended proof. *Their simplicity of construction, enormous capacity and power, reliability, steady and uniform pressure developed, economy of power and comparative cheapness render them par excellent for either continuous or fire service.* We have placed them in mills and factories to be used as a protection against fire; in distilleries for pumping hot liquors; in salt wells for pumping salt water—operating in the last two instances months at a time without cessation; in cities and villages for supplying water to reservoirs and hydrants; in slate and stone quarries for removing muddy and gritty water, as well as for various other purposes.

For the use of breweries and other establishments, where the corrosion of Iron Pumps renders them objectionable, we make of Bronze, to order. They have heavy cast-steel shafts, with outside bearings and Babbitt-metal boxes, with two pairs of heavy gears, to relieve the cams. They are built in a good, workmanlike manner, and we unhesitatingly recommend them as a first-class Pump in every respect.

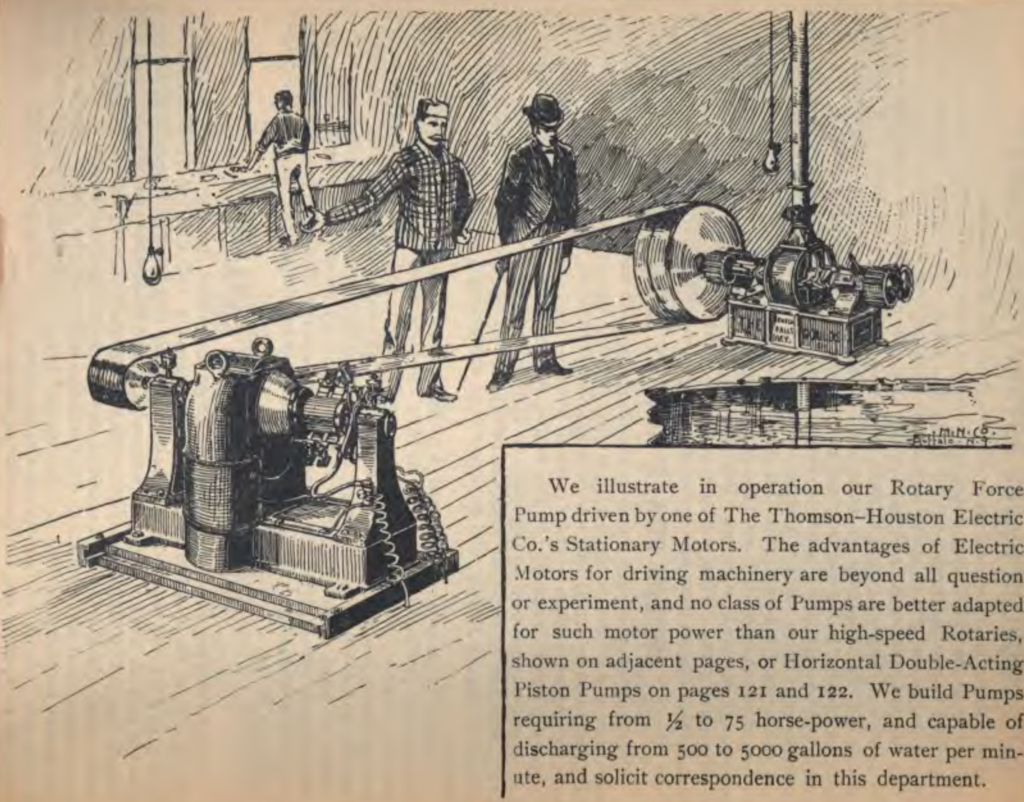
GOULDS POWER ROTARY FIRE PUMPS.

Practice and experience are daily demonstrating that the Rotary Pump stands without a peer as a protection against the ravages of fire. Large disastrous fires have become frightfully and ruinously frequent of late, and will continue to be, so long as those who have the needed facilities — water or steam power — to place their property almost beyond the possibility of destruction by this means, remain either ignorant of or indifferent to this adequate and essential safeguard, our Rotary Fire Pump. A small outlay, comparatively, which in a short time would be reimbursed by the saving in insurance, will purchase a stationary Rotary, and the expense of connecting it to machinery is very small indeed.

These Pumps are powerful enough to throw a stream to reach fire in the most remote and elevated portions of a building, as they will force water from 150 to 250 feet horizontally, or even further if run at high enough speed. In addition to throwing several streams through nozzles, they can be used for supplying stand pipes with openings or cut-offs on each floor of buildings, in connection with automatic sprinklers, or with a system of yard or fire hydrants. The Pumps may be driven by belts taken from machinery or motors, by spur or bevel gears, by shafts with ordinary or clutch couplings or by friction gearing. We illustrate each manner in our sketches, and shall be pleased to furnish further information or estimates on any plant.

POWER, SPEED AND CAPACITY.

These three conditions are so dependent on each other, that they must be considered collectively, as the speed of Pump governs its capacity, and a higher speed increases the power, as does also the distance and elevation water may be carried through pipes before it is discharged. We would, therefore, ask any who contemplate using a Power or Fire Rotary Pump to communicate direct with us, stating, as far as possible, the conditions under which the Pump will be operated, as well as the requirements, and we will furnish such information and estimate as will determine accurately the size of Pump required and power necessary to drive it. Among later pages will be found Table of pressure on Pumps and nozzles of fire streams thrown any distance; also schedule table of power required to operate our Pumps under stipulated conditions.



We illustrate in operation our Rotary Force Pump driven by one of The Thomson–Houston Electric Co.'s Stationary Motors. The advantages of Electric Motors for driving machinery are beyond all question or experiment, and no class of Pumps are better adapted for such motor power than our high-speed Rotaries, shown on adjacent pages, or Horizontal Double-Acting Piston Pumps on pages 121 and 122. We build Pumps requiring from ½ to 75 horse-power, and capable of discharging from 500 to 5000 gallons of water per minute, and solicit correspondence in this department.

GOULDS POWER ROTARY FORCE PUMP.

ON FRAME WITH TIGHT AND LOOSE PULLEYS.

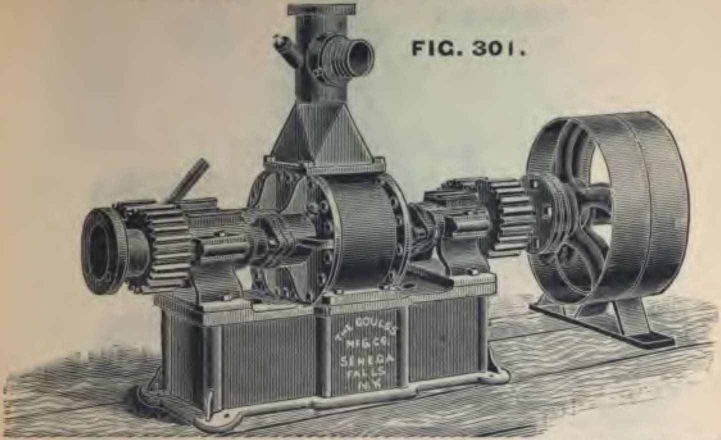

THE GOULDS MFG. CO. SENECA FALLS N.Y.

FIG. 301.

The above cut represents one of our large Power Rotary Force Pumps mounted on heavy cast-iron frame, with two sets of heavy cut gears and tight and loose pulleys for power. The internal construction of this Pump is fully illustrated and explained under **Fig. 300,** page 135, and our many years of experience and observation have devised nothing better for this class of Pumps. The cams are fitted to each other with the greatest care, and the cases that receive them made as true and perfect as the best tools and machinery can render them.

The pulleys are turned and polished and have a heavy outside bearing beyond the end, which relieves the shaft of all strain.

The suction and discharge openings can be fitted for cast-iron or wrought-iron pipe or hose as ordered.

In the table given below will be found the capacity of these Pumps and about the speed they should be run, although they could be run much faster if desired, with greater results.

FIG. 301. Sizes, Prices, Etc.

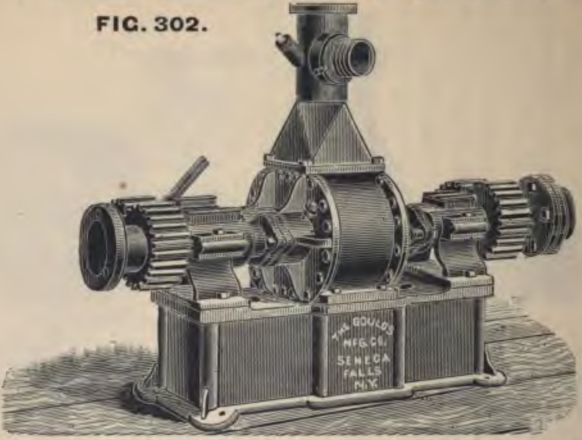
No.	Suc.	Dis.	Pulleys.	Rev. per Min.	Gal. per Rev.	IRON.		BRONZE.	
						Cipher.	Price.	Cipher.	Price.
1	2 in.	1½ in.	12 x 3½ in.	225 to 250	¼	Dowdy	$100.00	Doze	$160.00
2	2½ "	2 "	15½ x 4 "	175 to 200	½	Down	115.00	Dozen	180.00
3	3 "	2½ "	17½ x 5 "	150 to 175	1	Dowry	160.00	Dozy	260.00
4	5 "	4 "	20 x 6 "	125 to 150	1⅔	Wealth	225.00	Weaned	325.00
5	6 "	5 "	24 x 8 "	100 to 125	2½	Wean	275.00	Weanel	400.90

We refer to our *remarks on page* 140 concerning intermediate connections, and to *pages 213 to 219 for prices of* Pipe, Hose, Couplings, Play Pipes, Valves, etc.

GOULDS POWER ROTARY FORCE PUMP.

ON FRAME, WITH COUPLING ON EACH END OF DRIVING SHAFT.

FIG. 302.


THE GOULDS MFG. CO. SENECA FALLS N.Y.

This cut represents another of our Power Rotary Force Pumps as we build t
the larger sizes, mounted on frame, with two heavy sets cut gears and coupling o
end of driving shaft for power connection. For large Power Force Pumps,
Pumps, we would always recommend the use of gears, with direct shaft connectio
that of belt power, as there is less liability of accident, which is often so ruin
times of danger. However, where it is not practicable to make a connection
kind, we can furnish Counter Shaft, Pulleys and Outside Bearings, which may be
any distance from the Pump, and in a perfectly protected place. Every Pu
thoroughly tested and put in practical operation before leaving our works, and
guarantee each to be all we claim for them, perfect Pumps, or ask no pay. In th
below will be found the capacity of these Pumps and about the speed they should
although they may be run much faster without injury, with greater results. The s
and discharge openings can be fitted for cast-iron or wrought-iron pipe or hose as or

FIG. 302. Sizes, Prices, Etc.

No.	Suc.	Dis.	Rev. per Min.	Gal. per Rev.	IRON.		BRONZE	
					Cipher.	Price.	Cipher.	P
2	2½ in.	2 in.	175 to 200	1-2	Drag	$115.00	Weapon	$1
3	3 "	2½ "	150 to 175	1	Drain	160.00	Wear	2
4	5 "	4 "	125 to 150	1 2-3	Drake	225.00	Weard	3
5	6 "	5 "	100 to 125	2 1-2	Dram	275.00	Wearer	4

Pulleys and outside bearings, for No. 4, $30.00 | Pulleys and outside bearings, for No. 5,

We refer to our remarks on page 140 concerning intermediate connections,
pages 213 to 219 for prices of Pipe, Hose, Couplings, Play Pipes, Valves, etc.,

GOULDS POWER ROTARY FIRE PUMP.

FIG. 896.

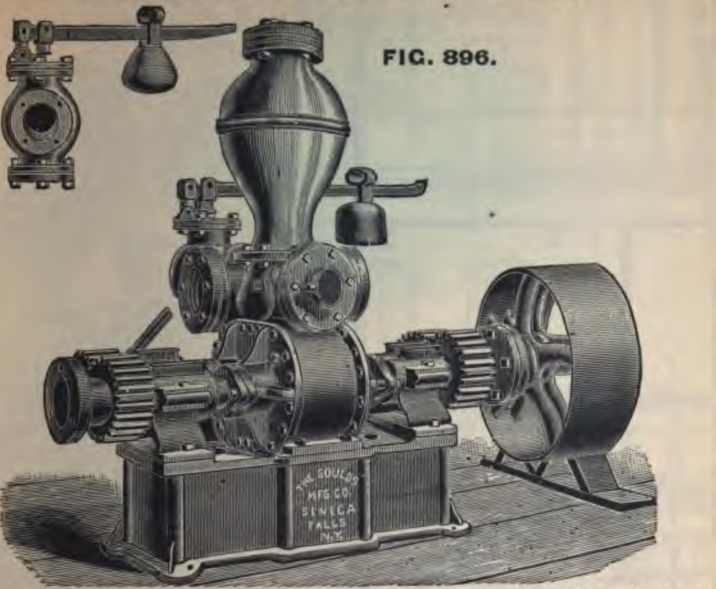


Fig. 896 represents our Power Rotary Fire Pump, surmounted with air chamber and Safety Valve, with outside bearings and one wide pulley for belt power. This manner of transmitting power may be preferable, or more available, in some places, and if necessary or desirable to secure protected position, driving shaft may be extended any distance, and outside bearing with pulley located at end.

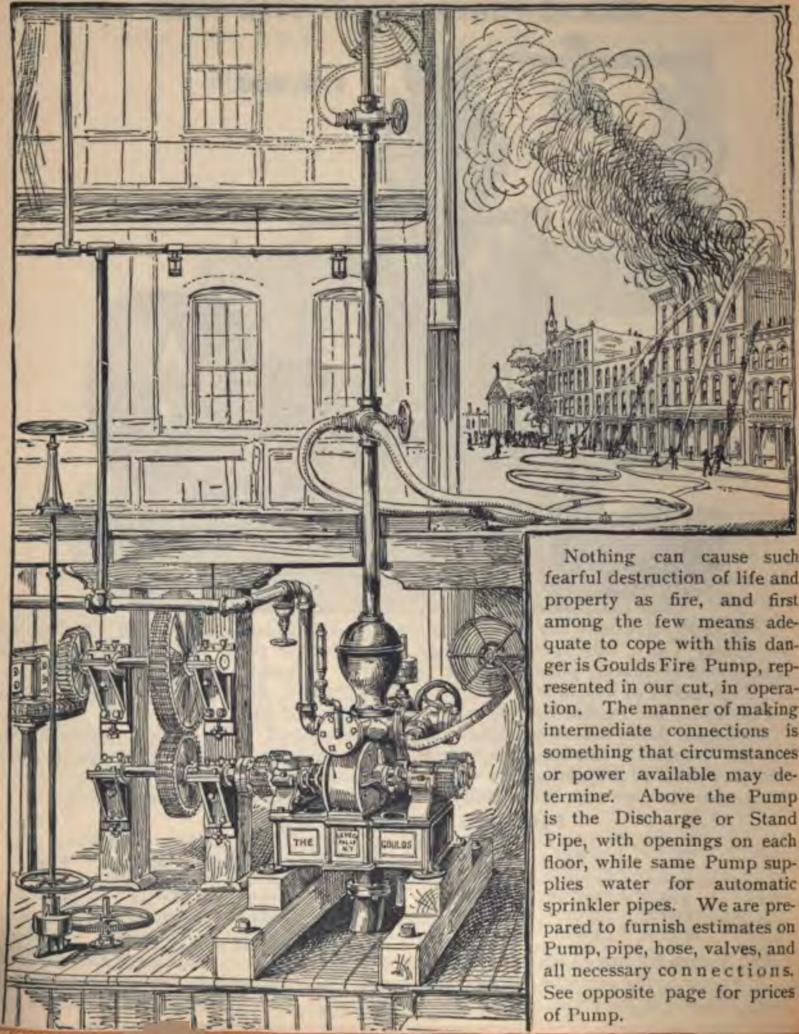
Fitted for hose, cast or wrought-iron pipe as ordered. Size of pulley given below may be changed to suit speed requirements or connections, and if smaller pulleys are used they must be proportionately wider to transmit power. Flanged Coupling is interchangeable at either end, thus readily adapting Pumps for any place or position.

FIG. 896. Sizes, Prices, Etc.

No.	Suc.	Dis.	Rev. per Minute.	Gal. per Rev.	Pulley.	Cipher.	Price.
3	3 in.	2½ in.	350 to 400	1	20x12 in.	Weald	$182.00
4	5 "	4 "	300 to 350	1 2–3	22x14 "	Wealden	252.00
5	6 "	5 "	250 to 300	2 1–2	24x15 "	Wealdish	315.00

Safety Valves for any of above sizes of Pumps, ... extra net, $15.00.

We refer to our remarks on page 140 concerning intermediate connections, and to pages 213 to 219 for prices of Pipe, Hose, Couplings, Play Pipes, Valves, etc.



Nothing can cause such fearful destruction of life and property as fire, and first among the few means adequate to cope with this danger is Goulds Fire Pump, represented in our cut, in operation. The manner of making intermediate connections is something that circumstances or power available may determine. Above the Pump is the Discharge or Stand Pipe, with openings on each floor, while same Pump supplies water for automatic sprinkler pipes. We are prepared to furnish estimates on Pump, pipe, hose, valves, and all necessary connections. See opposite page for prices of Pump.

GOULDS POWER ROTARY FIRE PUMPS.

WITH AIR CHAMBER AND SAFETY VALVE.

FIG. 302 1-2.

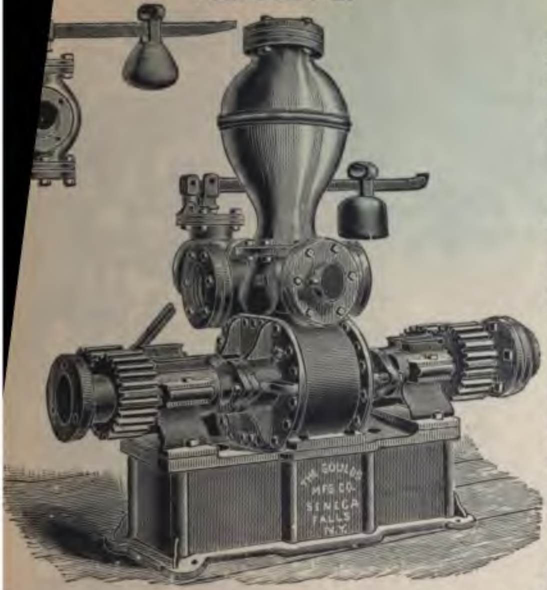


Fig. 302 1-2 represented here and on opposite page in operation is our large Rotary Pump built especially for high speed duty in protecting Mills, Factories, Warehouses, etc., against fire.

We recommend driving Fire Pumps by Direct Shaft, Gears or Friction Pulleys as being more reliable and less liable to accident than belts. The first requirements of a Fire Pump are *Reliability* and *Efficiency*, and we unhesitatingly commend our Pump to our friends as the crowning result of our many years of experience in which we have established the superiority of the Gould Rotary over all competitors or imitators. The discharge openings (five in number) and suction may be fitted for wrought-iron or cast-iron pipe or hose as ordered. The speed given below may be ncreased in cases of emergency without injury although intended as given for fire duty.

We solicit correspondence concerning these admirable Pumps, and will cheerfully furnish estimates on any contract, and fully guarantee every Pump sent from our works.

FIG. 302 1-2. Sizes, Prices, Etc.

No.	Suc.	Dis.	Rev. per Min.	Gal. per Rev.	Width and Length Over All.	Cipher.	Price.
3	3 in.	2½ in.	350 to 400	1	24x37 in.	Dregs	$172.00
4	5 "	4 "	300 to 350	1 2-3	27x37 "	Dress	240.00
5	6 "	5 "	250 to 300	2 1-2	28x47 "	Drift	300.00

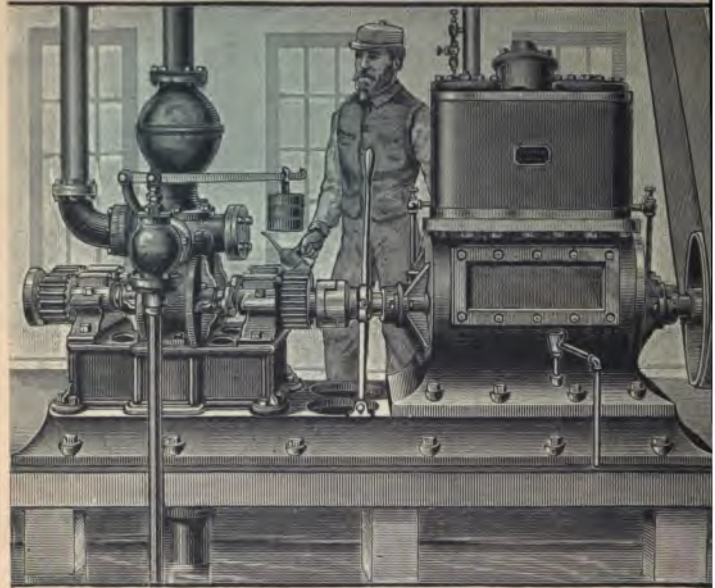
afety Valves for any of above sizes of Pumps, ... extra net $15.00

We refer to our remarks on page 140 concerning intermediate connections, and t ages 213 to 210 for prices of Pipe, Hose, Couplings, Play Pipes, Valves, etc.

ENGINE AND ROTARY PUMP.

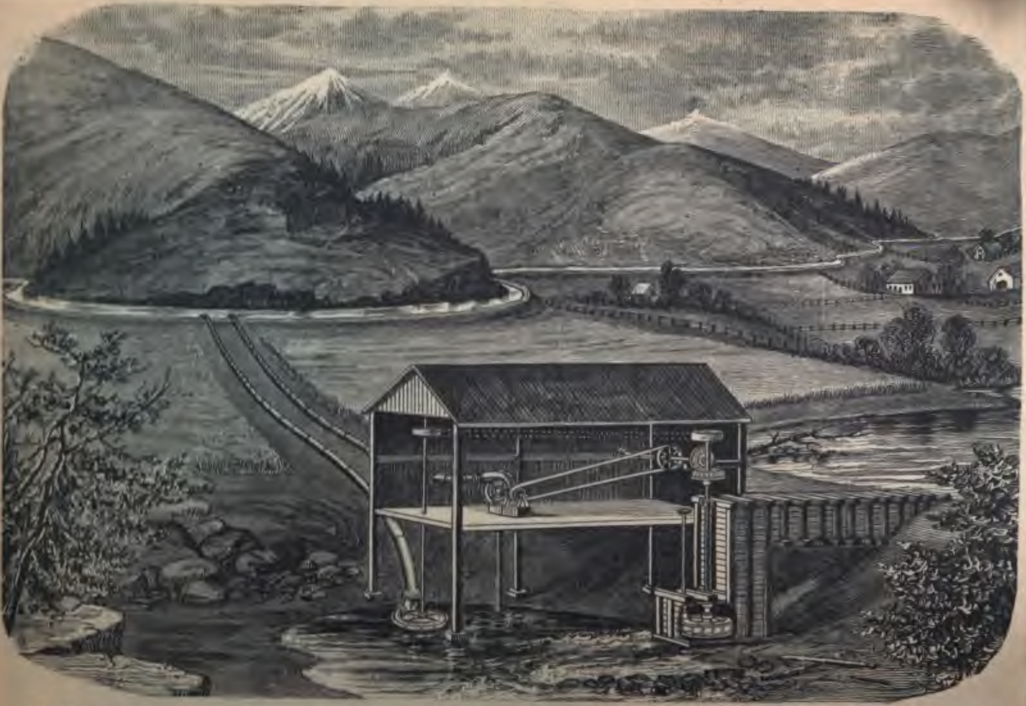
FOR INDEPENDENT OR COMBINED USE.

FIG. 828.



The above combination represents our Power Rotary Force Pump ar
bed plate with one of the famous Westinghouse Automatic Engines.
Coupling engages or disengages the two instantly, which admits of engine b
for any other daily work, such as driving shafts, etc., in buildings, while the
always ready for use when desired or necessary for Fire protection.

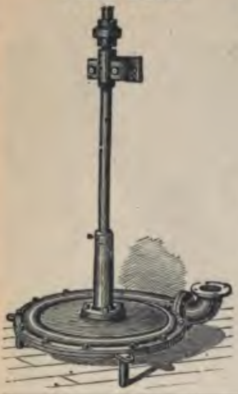
The advantages of the Rotary Pump over the Centrifugal Pump where
be raised above point of operation are too great to admit of any comparis
cost of power be considered, as it should from whatever source derived, the
always with the Rotary. At the same time, it represents the most approv
Force or Fire Pump for which the other is utterly unadapted, being of the po
and capable of producing any pressure. The Pump is adapted for the man
of a large Power Force Pump, such as water supply, irrigation, drainage,
and has a capacity of 300 to 1,200 gallons per minute. We solicit corres
and are prepared to furnish estimate on Pump and Engine complete.



We illustrate herewith our Vertical and Horizontal Centrifugal Pumps driven by the Leffel Water Wheel, for irrigation. Where water has to be raised but short distances, and delivered at nearly same height, the Centrifugal Pump stands first in point of cheapness and capacity. It will be noticed, too, how great an economy of water is gained in present plan, as the tail water of Wheel Driving Pumps is raised into the ditches. These Pumps are given on two following pages.

GOULDS VERTICAL SUBMERGED CENTRIFUGAL PUMP.

FIG. 694.



For irrigating and draining sugar and rice plantations; for contractors' use, draining sewers, coffer dams, wheel and lock pits, excavations, etc., etc.; for sugar houses, bleacheries, and dye works, oil mills, tanneries, breweries, distilleries, starch factories, etc.

Fig. 694 represents an Improved Vertical or Submerged Centrifugal Pump, adapted for any use where submerged Pumps can be used. These Pumps are constructed without valves, hence will raise water containing sand, gravel, clay, coal, tan bark or other impurities. They will also pump still slop, brewers' mash, and pulp, as readily as clear water, and will not clog or get foul.

FIG. 694. Sizes and Prices.

No. . . .	1¾	2	2½	3	3½	4	6	8	10	12	15	18
IRON, . .	Pant 40.00	Pare 60.00	Wander 70.00	Park 75.00	Wane 95.00	Part 110.00	Pass 170.00	Past 265.00	Pate 330.00	Path 420.00	Pave 600.00	Pawn 850.00
BRASS, . .	Peak 90.00	Peal 110.00	Wang 135.00	Peat 150.00	Wangan 200.00	Peck 240.00	Peek 360.00					

Table showing number of revolutions per minute necessary and power required to raise water to different heights with the different sizes of Pumps.

Number of Pump.	Capacity per minute, Gallons.	Horse Power required per ft. lift.	Size of Discharge Pipe, Inches.	Diameter of Pulley, Inches.	Face of Pulley, Inches.	REVOLUTIONS PER MINUTE.							
						6 Ft.	10 Ft.	16 Ft.	20 Ft.	25 Ft.	35 Ft.	40 Ft.	50 Ft.
1¾	200	.085	1¾	6	6	425	680	825	900	975	1120	1170	1284
2	300	.126	2	7	8	400	525	650	720	780	908	960	1058
2½	450	.190	2½	7	8	375	475	600	675	720	875	940	1010
3	650	.270	3	7	8	350	425	500	550	650	850	910	990
3½	1000	.425	3½	10	10	325	410	475	525	625	825	900	950
4	1250	.504	4	10	10	275	350	459	500	600	800	890	920
5	1850	.765	5	10	10	260	330	430	480	560	750	860	900
6	2650	1.10	6	12	12	209	240	360	420	490	580	610	650
8	4750	1.90	8	15	12	185	225	310	360	390	450	475	500
10	7500	3.14	10	18	14	166	220	285	320	360	414	436	470
12	10000	4.	12	20	14	160	210	246	268	285	320	335	365
15	16000	6.75	15	30	18	100	148	208	220	236	264	277	300
18	22000	9.65	18	40	24	80	110	148	155	168	204	220	254

GOULDS HORIZONTAL CENTRIFUGAL PUMPS.

FIG. 695.

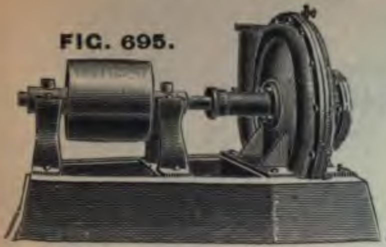


FIG. 696.

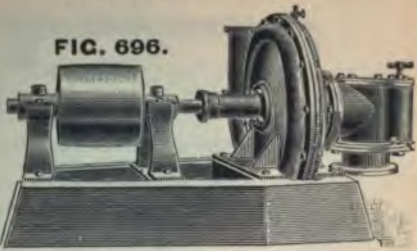


Fig. 695 represents our Improved Horizontal Centrifugal Pump, which is the Vertical Pump resting on its edge, securely fastened to an iron bed frame by flanges cast on each shell. This Pump must be set so that water will flow into it, unless a Foot Valve is used in bottom of induction pipe, in which case it may be set to not exceed twenty-eight feet above the water.

This Pump with foot valve at bottom of suction pipe is chiefly used for irrigation and draining.

Fig. 696 is the same as the **Fig. 695** with the addition of a primer for priming by hand. This style is used where pump sets above water. Our new hand primer is so arranged that there is but one valve; this valve can be reached in a moment by taking out two cap screws and removing plate. We make power primers for larger pumps. *Pumps built to run Right or Left-handed as desired.* In ordering state whether Pump should run Right or Left-handed. Pumps shown in cut run Right-handed.

FIG. 695. Sizes and Prices.

No.	1¾	2	2½	3	3½	4	6	8	10	12	15	18
IRON	Mane 50.00	Many 70.00	Wanting 80.00	Mar 95.00	Wanty 110.00	Mare 130.00	Mark 200.00	Marl 310.00	Mars 395.00	Mart 500.00	Mash 710.00	Mask 1000.00
BRASS..........	Mass 100.00	Mast 125.00	Wanze 150.00	Mat 175.00	Waped 230.00	Mate 275.00	Maul 410.00					

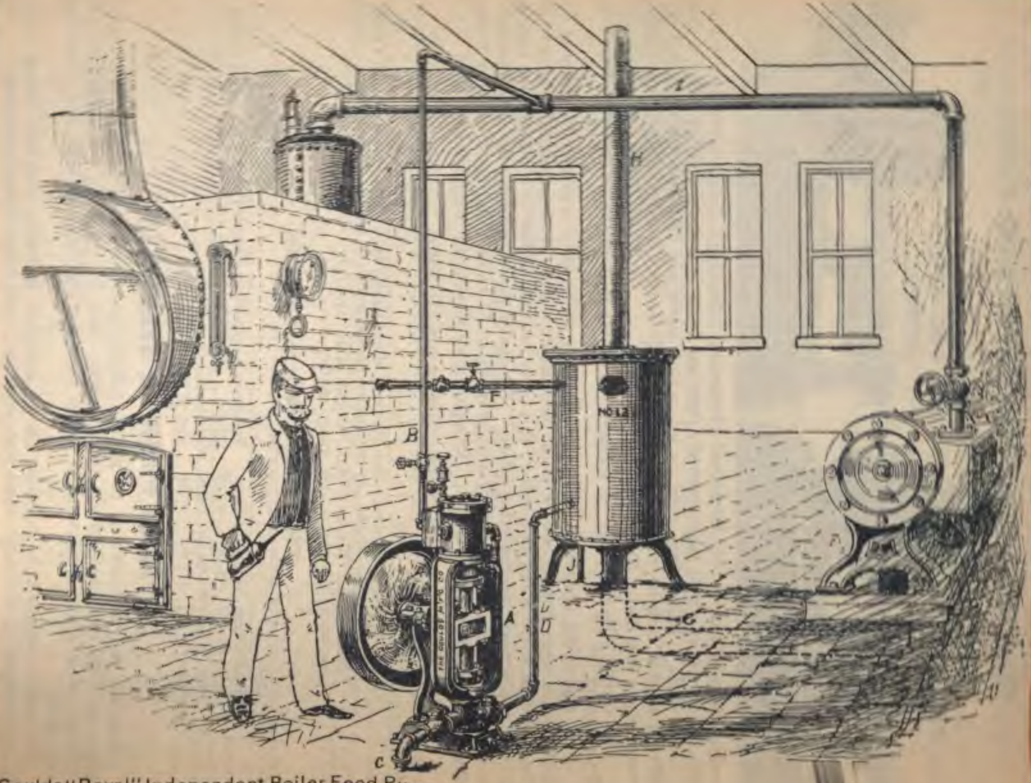
FIG. 696. Sizes and Prices.

No.......	1¾	2	2½	3	3½	4	6	8	10	12	15	18
IRON.....	Oval 60.00	Oven 85.00	Wapiti 95.00	Over 110.00	Wappe 135.00	Oxen 155.00	Oyer 240.00	Pace 375.00	Pack 470.00	Page 600.00	Pail 850.00	Pain 1250.00
BRASS...	Pair 120.00	Fall 150.00	Wardship 175.00	Palm 210.00	Wardsman 270.00	Pane 330.00	Pang 495.00					

SAND PUMPS A SPECIALTY.

Capacity ranges from 100 to 40,000 gallons per minute. Our new Horizontal Pumps are used quite extensively for pumping sand for building purposes and light dredging, also where quicksand is found in sewer-building, sinking and removing offer-dams.

We make a specialty of pumping plants complete including Engine, Pump, Pip etc., for irrigating, drainage, sand pumping, etc., and solicit correspondence.



Goulds "Royal" Independent Boiler Feed Pump in operation. S

description and prices.

GOULDS STEAM BOILER FEED PUMPS.

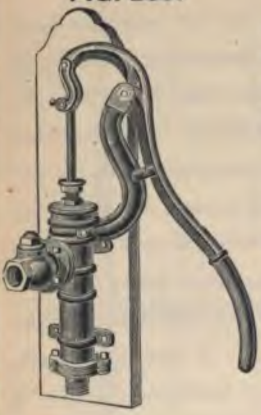
Of all known or tried means of feeding Steam Boilers but two have been found practical or economical, viz., belted or attached Pumps and direct acting Steam Pumps with or without fly-wheels. Injectors, Inspirators and kindred other devices have but one claim to popularity — their cheapness — but add to their original cost the increased daily expense for fuel under Boilers and the most pretentious Pump is infinitely cheaper. We build a large line of power Pumps other than those given on pages immediately following, which can be used as well for feeding large boilers, but believe those represented in this connection will answer most requirements. Among Direct Single Acting Independent Steam Pumps our "Royal" and "Queen" Pumps have no competitors in efficiency and high grade of workmanship. We have been engaged years in their manufacture, and without directing especial attention to their merits, they have grown steadily in favor, until to-day they are acknowledged par excellence among all pumps of this class. We referred incidentally to saving in operating Steam Pumps over other devices, and proofs are not wanting to sustain our assertion, as shown in the Table of Tests given among latter pages. In this connection, we would also call the attention of all steam users to the economy of using Feed Water Heaters in connection with our Pumps, and are prepared to furnish estimate and outfit of Pump and Heater complete, as shown in cut.

Our sketch on opposite page represents so plainly connections between Pump Heater, Engine and Boiler, that detailed explanation seems almost unnecessary. We shall, however, be pleased to be consulted on any matters pertaining to this department, and shall take pleasure in making recommendations or estimates for any plant. The different classes of these Pumps are represented between pages 156 and 163, and refer gain to later pages for useful information concerning steam, sundry Tables of Tests, c., etc., and will cheerfully guarantee any Pump placed upon our advice.

GOULDS HAND BOILER FEED PUMP ON PLANK.

WITH BRASS GLOBE CHECK VALVE.

FIG. 289.



The cut shows a Boiler Feed Pump for filling cold boilers, or feeding those under a moderate pressure of steam. Where boilers are employed for making steam merely, and do not make enough of it to generate any pressure to speak of, these Pumps are very extensively used.

A brass globe check valve in the eduction outlet prevents the water from going back again into the Pump. They are all made with metallic fittings throughout for pumping hot as well as cold water. We would advise when pumping hot water that the Pump be placed as near the water as possible. Stroke 6 inches.

FIG. 289. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Gal. per Stroke.	Size of Boiler.	Cipher.	Price.
0	2 in.	1 in.	1–6	15 H. P.	Digit	$12.00
2	2½ "	1¼ "	1–4	25 "	Dike	14.00
4	3 "	1¼ "	1–3	30 "	Dim	16.00

GOULDS HAND BOILER FEED PUMP, ON BASE.

FIG. 495.

WITH BRASS GLOBE CHECK VALVE.

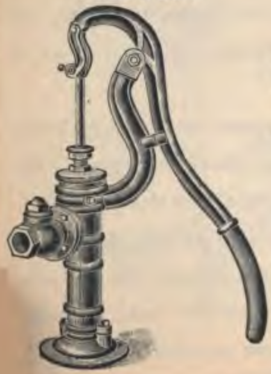


Fig. 495 is the same in appearance and construction as **Fig. 289,** except it is a base Pump, and is designed for the same work. Our new cuts do these Pumps justice, and we can commend them as being just as good as they look. Stroke 6 inches.

FIG. 495. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Gal. per Stroke.	Size of Boiler.	Cipher.	Price.
0	2 in.	1 in.	1–6	15 H. P.	Head	$12.00
2	2½ "	1¼ "	1–4	25 "	Heal	14.00
4	3 "	1¼ "	1–3	30 "	Heap	16.00

GOULDS STEAM BOILER FEED PUMP, ON BED PLATE.

WITH COLUMN AND SINGLE PULLEY FOR HAND OR POWER.

FIG. 482.

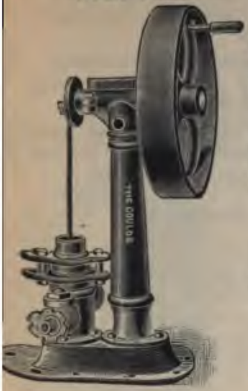


Fig. 482 represents our Steam Boiler Feed Pump on bed plate, with column, crank shaft, face plate and single pulley, with iron handle for hand or power use. One of the chief advantages of this style of Pump is the ease with which it can be fastened to its place on the floor. The Pump and column being perfectly in line with each other—only the bed plate requires leveling. This Pump will feed boilers under any steam pressure. We always recommend the shortest possible suction pipe to a Feed Pump, as there is not so much danger of its losing its priming. Stroke 3 inches.

FIG. 482. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. Dis.	Gal. per Min. 60 St'ks.	Pulley.	Size of Boiler.	Cipher.	Price.
0	2 in.	1 in.	2.45	16 x 4 in.	20 H. P.	Gull	$30.00
2	2½ "	1 "	3.82	18 x 4 "	30 "	Gully	38.00
4	3 "	1¼ "	5.51	20 x 4 "	40 "	Gulp	48.00

GOULDS STEAM BOILER FEED PUMP, ON BED PLATE.

WITH COLUMN AND TWO PULLEYS, FOR HAND OR POWER.

FIG. 483.

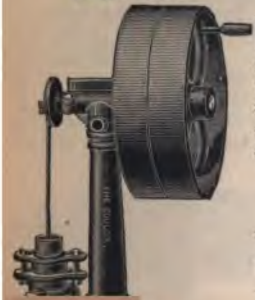


Fig. 483 represents another Steam Boiler Feed Pump on bed plate, with column, face plate, etc., and a tight and loose pulley. The driving one is farthest from the Pump, and is provided with an iron handle, and can be used to work the Pump before steam is up, which is often required, after blowing off a boiler. These Pumps are as substantial as one of the kind can be built, and have given the best of satisfaction where employed.

Stroke 3 inches.

FIG. 483. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Gal. per Min. 60 St'ks	Pulleys.	Size of Boiler.	Cipher.	Price.
0	2 in.	1 in.	2.45	16 x 4 in.	20 H. P.	Gust	$34.00
2	2½ "	1 "	3 82	18 x 4 "	30 "	Guy	40.00
4	3 "	1¼ "	5.51	20 x 4 "	40 "	Habit	50.00

Both pulleys have screws for fastening to crank shaft.

GOULDS STEAM BOILER FEED PUMP, ON BED PLATE.

WITH COLUMN AND TWO PULLEYS, FOR HAND OR POWER.

FIG. 484.

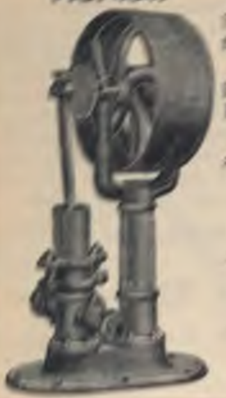


Fig. 484 shows an entirely new and improved patter steam Boiler Feed Pump with crank-shaft, face-plate tight and loose pulleys.

On the end of driving-shaft, opposite the face-plate, heavy iron crank with wrought-iron handle for working Pump when necessary before steam is up.

These Pumps will feed boilers under any steam pres and are built in the best possible manner. Stroke 3½ inc

Pulleys are 16 inch diameter, 4 inch face each.

FIC. 484. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Gal. per Min. 60 Strokes	Size of Boiler.	Cipher.	Pri
0	2 in.	1 in.	2.45	30 H. P.	Hair	$34
2	2½ "	1 "	3.82	40 "	Hale	40
4	3 "	1¼ "	5.51	50 "	Half	50

GOULDS STEAM BOILER FEED PUMP.

WITH STUB END FOR POWER.

FIG. 292.

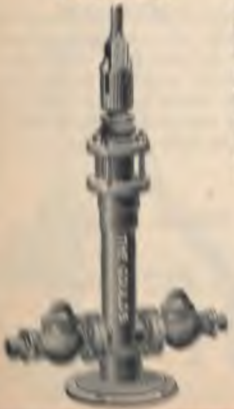


Fig. 292 represents our Steam Boiler Feed Pump for plying steam boilers with water against any pressure. is the best Boiler Pump made. The globe-check valves made of separate castings, faced off and bolted on the b of Pump by a tight-packed joint. The valve-seats are m of best bronze and screwed into the iron castings, and c therefore be removed when worn out and other new ones i serted. The valve itself is also of bronze. The stuffing box, top of piston and stub end are finished bright and polished. Stroke 9 inches.

FIG. 292. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Gal. per Min. 60 Strokes	Size of Boiler.	Cipher.	Price.
00	1¾ in.	1 in.	4.13	30 H. P.	Dime	$30.00
0	2 "	1¼ "	7.35	50 "	Din	35.00
2	2½ "	1¼ "	11.47	75 "	Dine	40.00
4	3 "	1½ "	16.52	125 "	Dingy	50.00

OULDS "QUEEN" INDEPENDENT STEAM BOILER FEED PUMP.

WITH BRACKETS.

FIG. 213.

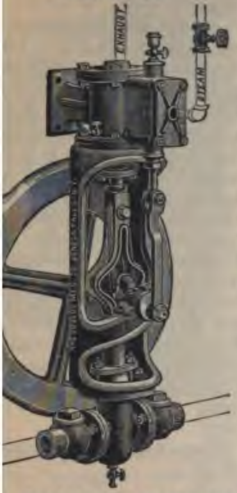


Fig. 213 shows our latest design in Steam Boiler Feed Pumps to be fastened against the wall, post or the side of a boiler. The principal points of same we enumerate below: The Piston of the Steam Cylinder is connected with the Plunger of the Water Cylinder by a strong Malleable Iron Yoke: The Crank Shaft instead of sliding in the Yoke, simply moves up and down inside of it, without touching it at all, so that there is no friction or wear on these parts: The connecting rod is made of bronze and can be adjusted to take up wear on the Crank Shaft: A Plain Slide Valve is used, arranged to cut off at three-quarter stroke and as clearance is made very small the consumption of steam is reduced to a minimum. We make, at present, only one size, but shall make other sizes very soon. With each Pump we furnish Throttle Valve, Oil Cup and Let-off Plugs.

FIG. 213. Sizes, Prices, Etc.

No.	Dia. Steam Cyl.	Dia. Water Plunger.	Stroke.	Steam Pipe.	Exhaust Pipe.	Water Pipes.	Rev. per Min.	Gallons per Min.	Size of Boiler.	Cipher.	Price.
1	3 in.	1½ in.	2½	⅜in	½in	1 in	100	1.93	15 H.P.	Vote	$44.00

GOULDS STEAM BOILER FEED PUMP, FOR POWER.

FIG. 485.

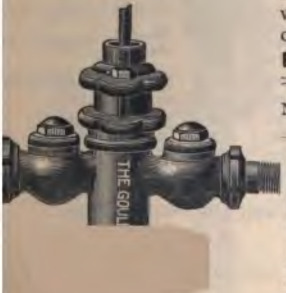


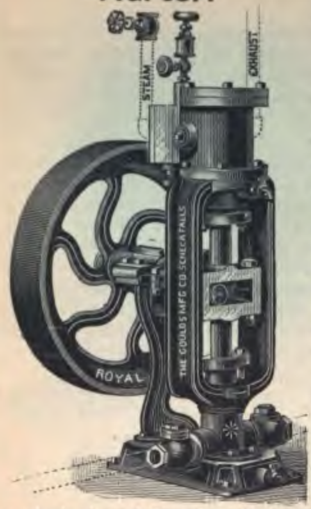
Fig. 485 represents our new style Steam Boiler Feed Pump for power. It is the same in principle as our **Fig. 292** on opposite page, but differs somewhat in form and construction and is one of the cheapest and most serviceable Pumps in the market.

FIG. 485. (Waterman.) Sizes, Prices, Etc.

No.	Dia. Cyl.	Str'ke	Suc. and Dis.	Str'ks per Min.	Gal. per Min.	Size of Boiler.	Price.
2	1¼ in.	6 in.	¾ in.	40	1.27	10 H. P.	$10.00
3	1½ "	6 "	1 "	40	1.84	15 "	15.00
4	1½ "	3 "	¾ "	60	1.37	12 "	14.00
5	2 "	3 "	1 "	60	2.45	20 "	18.00
6	2½ "	3 "	1 "	60	3.82	30 "	22.00
7	3 "	3 "	1¼ "	60	5.50	40 "	27.00
8	2 "	6 "	1¼ "	40	3.26	25 "	22.00
9	2½ "	6 "	1¼ "	40	5.10	35 "	30.0
10	3 "	6 "	1½ "	40	7.35	50 "	40.0

GOULDS "ROYAL" INDEPENDENT STEAM BOILER FEED PUMP.

FIG. 687.


STEAM
EXHAUST
THE GOULDS MFG CO. SENECA FALLS
ROYAL

The "Royal" is a new and improved Independent Boiler Feeder, and has many points of merit in its arrangement, construction and proportions not found in any other pumps.

The main or frame casting, with supporting arm, is all in one piece, so that the shaft revolves in perfectly rigid bearings, while the eccentric connection works in a vertical line, without any lateral pressure on the valve rod to heave and pull the steam chest, cramp the rod and create friction. The cylinder heads have ground surfaces; the space between cylinder and chest is tapped on either side for the exhaust steam pipe, and the brass globe check valves are each designated "suction" or "discharge" for convenience, and can be connected on either side of Pump if necessary. If water is to be raised by suction, put a foot valve and strainer on end of suction pipe and make all joints tight.

Engineers all say that the GOULD "ROYAL" is the most substantial, best proportioned and modern in its general construction and arrangement of parts. of any of the large number of Single-Acting Boiler Feed Pumps, and always give it the preference over all others.

We can make these Pumps with brass plungers, if so desired, and line the cylinders with brass, also, at extra price.

Every Pump is fully guaranteed.

The table below will give a full description of capacity, prices, etc., of these Pumps.

FIG. 687. Sizes, Prices, Etc.

No.	Dia. Steam Cyl.	Dia. Water Plunger	Stroke.	Steam Pipe.	Exha'st Pipe.	Water Pipes.	Rev. per Min.	Gallons per Min.	Size of Boiler.	Cipher.	Price.
1	3 in.	1⅜ in.	3 in.	⅜ in.	¾ in.	1 in.	100	1.93	15 H. P.	Sago	$44.00
2	3½ "	1¾ "	3 "	½ "	¾ "	1 "	100	3.12	27 H. P.	Sail	55.00
3	4 "	2¼ "	4 "	¾ "	1 "	1¼ "	90	6.20	46 H. P.	Sake	70.00
4	4½ "	2¾ "	4 "	¾ "	1 "	1½ "	85	8.75	62 H. P.	Salad	82.50
5	5 "	3½ "	4 "	¾ "	1¼ "	1½ "	80	13.33	106 H. P.	Sale	110.00
6	6 "	4 "	5 "	1 "	1½ "	2 "	75	21.75	164 H. P.	Salt	154.00

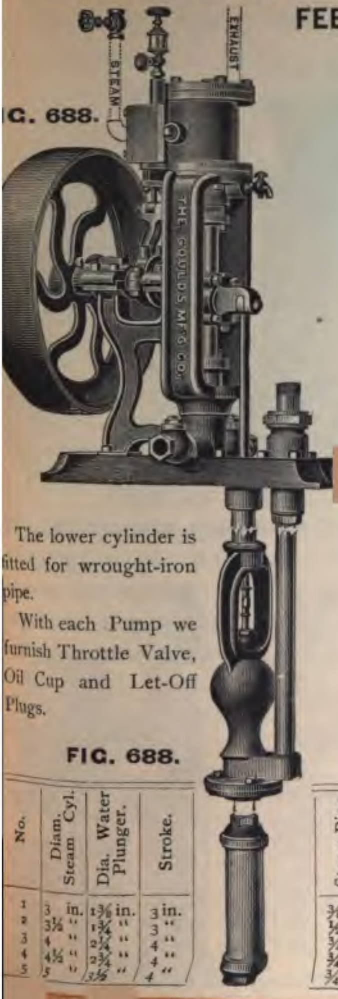
With each Pump we furnish Throttle Valve, Oil Cup and Let-Off Plugs.

☞ Send for special Steam Pump Catalogue.

See also pages 154 and 155 for illustration and description of this pump in oper*ation.*

GOULDS "ROYAL" INDEPENDENT STEAM BOILER FEED PUMP.

IG. 688.



WITH EXTENSION FOR WELLS.

This cut shows our "Royal" Steam Boiler Feed Pump, with extension or set length below the bed plate, so that it can be operated in wells; pumping cold water nto a tank and then forcing into the boiler at the same time. For a full description of the "Royal" Steam Boiler Feed Pumps, see our **Fig. 687**, on opposite page. The combination as shown in this cut will be greatly appreciated by those who have to obtain their water from wells. The sizes and prices we give below. The prices include all as shown in the cut, except the gas pipe and rods between the air chamber and lower cylinder; these we furnish according to the depth of the well. We can make the water plunger of the Steam Pump of brass, if so desired; also, line the cylinder with brass, at extra expense.

The lower cylinder is fitted for wrought-iron pipe.

With each Pump we furnish Throttle Valve, Oil Cup and Let-Off Plugs.

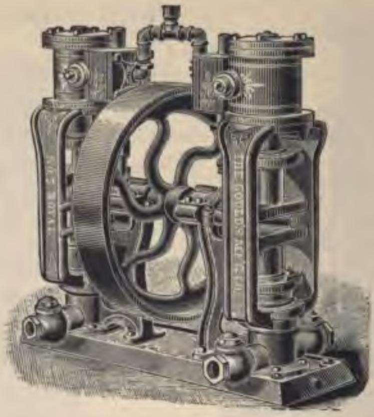
FIG. 688.

(Waterpoa.) **Sizes, Prices, Etc.**

No.	Diam. Steam Cyl.	Dia. Water Plunger.	Stroke.	Steam Pipe.	Exhaust Pipe.	Water Pipe.	Rev. per Min.	Gallons per Minute.	Size of Boiler.	Diameter of Lower Cyl.	Price.
1	3 in.	1⅜ in.	3 in.	⅜ in.	¾ in.	1 in.	100	1.93	15 H. P.	1½ in.	$62 00
2	3½ "	1¾ "	3 "	½ "	¾ "	1 "	100	3.12	27 H. P.	2 "	73 00
3	4 "	2¼ "	4 "	¾ "	1 "	1¼ "	90	6.20	46 H. P.	2½ "	90.00
4	4½ "	2¾ "	4 "	¾ "	1 "	1½ "	85	8.75	62 H. P.	3 "	103.00
5	5 "	3⅛ "	4 "	¾ "	1¼ "	1½ "	80	13.33	106 H. P.	3½ "	130.00

GOULDS "ROYAL" DUPLEX STEAM BOILER FEED PUMP.

FIG. 700.



The above cut represents our Duplex "Royal" Steam Pump, being two **Fig. 687** bolted or joined together, with one heavy balance wheel, and mounted on heavy iron base. For further description we refer to **Fig. 687,** page 160. We can either connect the steam pipes together, so as to use one supply pipe of double the capacity of a single Pump, or can leave them separate, and can do the same with the exhaust pipes. We give below sizes and prices, as follows :

FIG. 700. Sizes, Prices, Etc.

No.	Dia. Steam Cyls.	Dia. Water Pl'gers.	Stroke.	Size of Steam Pipes.	Size of Exha'st Pipes.	Size of Supply Pipes.	Rev. per Min.	Gal. per Min.	Size of Boiler.	Cipher.	Price.
1	3 in.	1⅜ in.	3 in.	⅜ in.	¾ in.	1 in.	100	3.86	30 H. P.	Sting	$88.00
2	3½ "	1¾ "	3 "	½ "	¾ "	1 "	100	6.24	54 "	Stint	110.00
3	4 "	2¼ "	4 "	¾ "	1 "	1¼ "	90	12.40	92 "	Stir	140.00
4	4½ "	2¾ "	4 "	¾ "	1 "	1½ "	85	17.50	124 "	Stock	165.00
5	5 "	3½ "	4 "	¾ "	1¼ "	1½ "	80	26.66	212 "	Stoic	220.00
6	6 "	4 "	5 "	1 "	1½ "	2 "	75	43.50	328 "	Stone	308.00

With each Pump we furnish Throttle Valves, Oil Cups and Let-off Plugs.

GOULDS VERTICAL POWER PISTON PUMP.

TH CRANK SHAFT, PULLEY AND HANDLE, FOR HAND OR POWER.

FIG. 703.

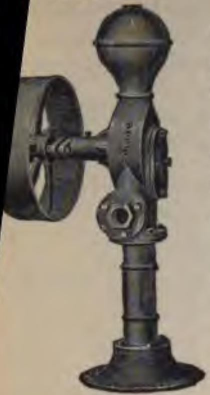


Fig. 703 represents a new and admirable device for raising water from shallow wells or cisterns by hand or power and forcing it any distance required, or into boilers, tanks, etc. The pump as we now build it possesses many advantages over the earlier types, and we believe its compact form and low price will commend it for the almost innumerable uses of a pump of this kind. Pulley 16 inches diameter, 4 inches face.

FIG. 703. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Stroke.	Gal. per Stroke.	Cipher.	Price.
4	3 in.	1¼ in.	6 in.	1-5	Scot	$25.00
6	3½ "	1¼ "	6 "	1-4	Scour	32.00

GOULDS VERTICAL POWER PISTON PUMP.

WITH CRANK SHAFT, TIGHT AND LOOSE PULLEYS FOR POWER.

FIG. 881.

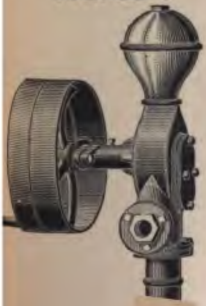


Fig. 881 represents our Vertical Power Piston Pump with crank shaft (under crank case) and tight and loose pulleys, which will be found more convenient where machine power alone is used.

It would be difficult to enumerate the uses of this pump, but might cite as a single one, suggestive of others, in creameries where a constant supply of flowing water is required.

FIG. 881. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Stroke.	Gal. per Stroke.	Cipher.	Price.
4	3 in.	1¼ in.	6 in.	1-5	Wardmont	$30.00
6	3½ "	1¼ "	6 "	1-4	Wardrobe	40.00

GOULDS BRASS AIR PUMP.

MOUNTED ON PLANK. WITH WROUGHT-IRON LEVER.

FIG. 459.

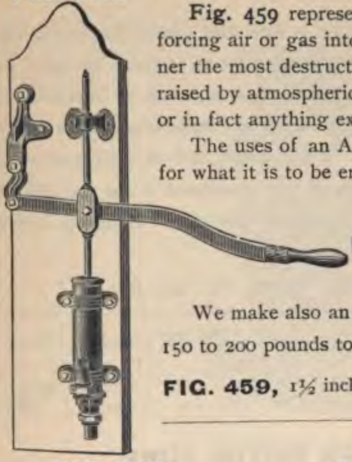


Fig. 459 represents a Brass Air Pump of proper construction for forcing air or gas into barrels, casks or other vessels. In this manner the most destructive acids, such as nitric, sulphuric, etc., may be raised by atmospheric pressure without coming in contact with Pump or in fact anything except conveying pipes.

The uses of an Air Pump are so various, that we prefer to know for what it is to be employed, quantity of air desired, etc.

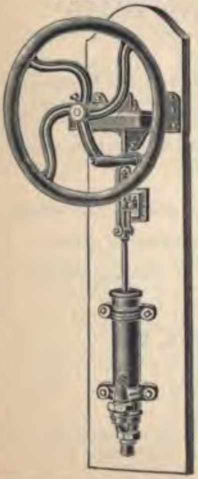
Sizes and Prices.

FIG. 459, 2 inch bore, 6 inch stroke (Girl), ...$15.00

We make also an Air Pump intended for heavier pressures, say 150 to 200 pounds to the square inch, as below.

FIG. 459, 1½ inch bore, 10 inch stroke........(Gird).... ....$30.00

FIG. 893.



GOULDS BRASS AIR PUMP.

MOUNTED ON PLANK, WITH CRANK SHAFT AND FLY WHEEL.

Fig. 893 is substantially the same as **Fig. 459** described above and adapted for the same purposes. Where any amount of pressure is required it will be generated much easier with the aid of Crank Shaft or Fly Wheel than with lever.

We might also say this style of Pump is extensively used for pumping air into Beer Casks and raising it without aid of other appliances.

Sizes and Prices.

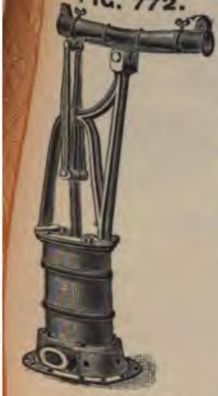
FIG. 893, 2 inch bore, 6 inch stroke....(Wampum)....$28.00
" 1½ inch bore, 10 inch stroke.....(Wan)..... 43.00

GOULDS AIR COMPRESSOR OR VACUUM PUMP.

WITH BRAKE FOR HAND POWER.

Fig. 772 represents our Air Compressor, arranged with brake for hand-power where no other is available. We can also put on a proper shape forked rod which will adapt this Pump for power as well, thus making it equal to any emergency or circumstances.

FIG. 772.



It is constructed with brass-lined cylinder and metallic valves in a scientific manner, so that all the air received into the cylinder on the up-stroke of the piston will be forced out on the down-stroke. The cylinder is 6 inches bore and 12 inches stroke, with capacity of 319 cubic inches of air at each stroke, and will discharge it into a receiver at any desired pressure up to, say, 100 pounds per square inch, by applying the necessary power.

The size of receiver that it will fill will be governed by the pressure. That is, at 50 revolutions the Pump will deliver 15,950 cubic inches, or about 9 cubic feet at ordinary atmospheric pressure.

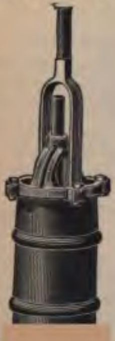
At 2 atmospheres, or 15 lbs. pressure, about 4½ cubic feet.
At 3 " 30 " 3 "
At 4 " 45 " 2¼ "

This law governs all Air Pressure Pumps. In making high pressure the cylinder should be set in water to keep it cool.

FIG. 772. Size, Price, Etc.

No.	Dia. Cyl.	Stroke.	Inlet.	Outlet.	Cipher.	Price.
16	6 inches.	12 inches.	1¼ inch.	1¼ inch.	Viary	$50.00

FIG. 605.



GOULDS AIR COMPRESSOR OR VACUUM PUMP.

ARRANGED FOR MACHINE POWER.

Fig. 605 represents our Air Compressor or Vacuum Pump arranged with stub end for power connection. Excepting only the difference in construction of pitman, guide, etc., it is in all other respects the same as our **Fig. 772,** given above, and would refer to that Pump for full description, capacity, etc.

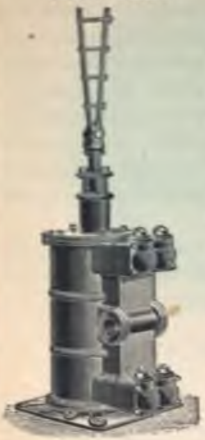
FIG. 605. Size, Price, Etc.

No.	Dia. Cyl.	Stroke.	Inlet.	Outlet.	Cipher.	Price.
16	6 inches.	12 inches.	1¼ inch.	1¼ inch.	Moor	$40.0

GOULDS PATENT GAS OR AIR PUMP.

FOR GAS OR OIL WELLS, WHITE LEAD WORKS, ETC.

FIG. 280.



These Pumps are used very extensively in the oil wells c America, for exhausting the gas from them, and so largel increasing their production, as well as for increasing flow c gas from natural gas wells which might otherwise be abandone or unproductive. They can also be used for compressing c exhausting air or gas in large volumes. We solicit corr spondence concerning these Pumps, and would be pleased t furnish a complete and detailed description of them, whic space will not allow here.

FIG. 280. Sizes, Prices, Etc.

Dia. Cyl.	Pipes.	Stroke.	Height Base to Cylinder Head.	Floor Space.	Cipher.	Price
12 in.	2 in.	20 in.	27½ in.	22 x 22 in.	Dampy	$110.
14 "	2 "	20 "	27½ "	22 x 22 "	Dance	125.

GOULDS HYDRAULIC TEST PUMP.

WITH CAST-IRON TANK.

FIG. 789.

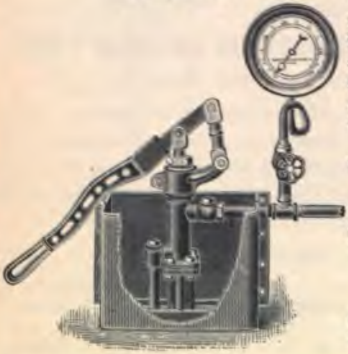


Fig. 789 illustrates our new Gun Metal Te Pump, for testing boilers, tanks, pipes, etc., etc to one thousand pounds pressure on the squa inch, if necessary. As the cistern only hol about two gallons of water, the thing to be teste should first be filled by other means and th tester then applied to supply the balance an work up the pressure.

Everything is made first-class in all respect Weight about forty pounds.

FIG. 789. Size, Price, Etc.

Complete as shown, with ⅞ inch piston and delivery pipe screwed for ½ inch gas pipe coupling, ... (Wedder) $30.

This price does not include Test Gauge, whic will be supplied of any desired size or style lowest market rates.

GOULDS PRESSURE OR TEST PUMP.

FOR TESTING BOILERS, PIPES, ETC.

FIG. 867.

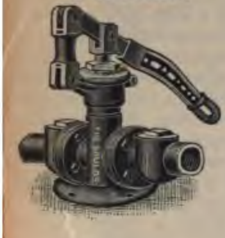


Fig. 867 represents a new Pressure or Test Pump we have designed to supplant our old **Fig. 293,** and feel it will need but few words to commend it to our friends.

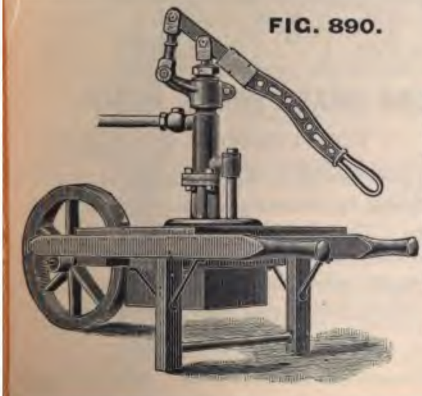
As indicated by our illustration, it is of compact build and of commensurate strength for work for which it is designed.

It has a revolving top, admitting its being worked in any position, and a sectional lever, which can be changed to give greatest leverage. The suction and discharge valves (flanged and bolted to cylinder) are of a new and improved type, with brass valve seats, poppets and caps. The pump should be placed within short suction distance of water, or on a level with it, and will be found invaluable to the boiler maker or user for testing the condition of Boilers, Vessels, etc., for cleaning out pipes, etc., etc. It will generate a cold water pressure of 500 pounds per square inch.

FIG. 867. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc. and Dis.	Stroke.	Cipher.	Price.
0	¾ in.	1 in.	5 in.	Webbed	$20.00
1	1 "	1 "	5 "	Webber	21.50
2	1¼ "	1 "	5 "	Webby	22.50
3	1½ "	1 "	5 "	Wed	27.50

FIG. 890.



PRESSURE OR TEST PUMP.

ON BARROW, WITH TANK.

Fig. 890 represents our Hydraulic Pressure Pump, **Fig. 789,** described on opposite page, mounted on strong wood barrow with cast-iron tank underneath for portable use in the many services which these Pumps can perform, as testing boilers, cleaning out drain or waste pipes, etc. We believe this combination one of great utility, and while we give prices for this style of Pump only, can so arrange our other Pressure Pumps at proportionate prices.

Price.

Fig. 890, complete, as shown in cut, with ⅞ inch piston and delivery pipe screwed for ½ inch coupling (Wedded), ... $35.00

GOULDS "CROTON" BRASS LIFT AND FORCE PUMPS

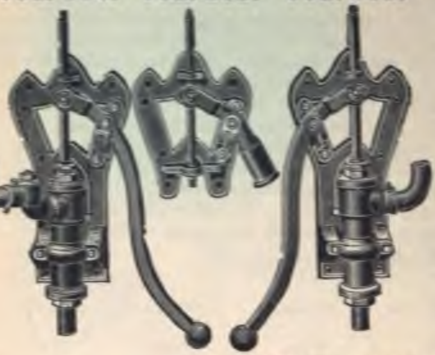
ON IRON FRAME, RIGHT OR LEFT HANDED.

These cuts represent our **Figs. 563, 564** and **565** Pumps and frame for forcin
lifting small quantities of water to considerable elevations. The *modus opera*
these Pumps is as follows: Locate either **Fig. 563** or **564** in the first story
building, within suction distance of the water, and from the end of elbow exten
pipe up through the upper stories, having outlet cocks as well as a **Fig. 565** i
story. The Pump being hur
swivel it can be turned to any

In cities, where the head
water works will not force th
above the first story, these
will be fully appreciated. T
end of guide rods on **Figs. 5**
564 and the bottom end o
565, are cut for ¼ inch gas

We also make a Force
with air chamber, as illustra
Fig. 566 on page 172, wh
be used in any place as
these, and will force water t
hose and discharge pipe.
fit both suction and discha
either hose or wrought iron
so ordered.

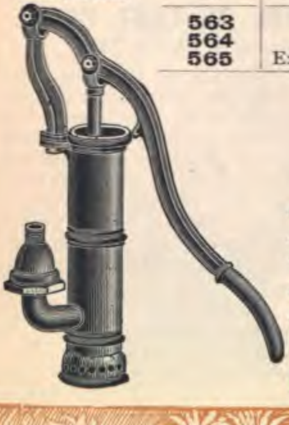
FIG. 564. **FIG. 565.** **FIG. 563.**



Sizes, Prices, Etc.

Fig.	Dia. Cyl.	Suc. for Lead Pipe.	Dis. for Lead Pipe.	Cipher.	
563	2 in.	1 in.	¾ in.	Leak	$
564	2 "	1 "	¾ "	Lean	
565	Extra frame.	. . .	. . .	Leap	

FIG. 322.



GOULDS BRASS FORCE PUMP

FOR PLUMBERS.

Fig. 322 represents an entirely new model of
ers' Force Pump, for removing obstructions ir
or water pipes. The working parts are made o
The pipe to be cleared is connected to the Pump b
while the Pump is placed in a vessel of water
discharge is always fitted for ¾ inch hose coupli

Size, Price, Etc.

FIG. 322, 2 in. Cylinder, 5 in. stroke. (Dusty)

GOULDS AIR PRESSURE OR VACUUM PUMPS.

FIG. 623.

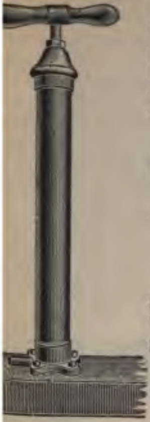
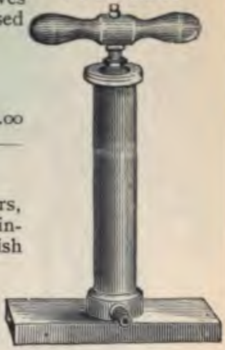


Fig. 623 represents an Air Exhausting Pump made of Brass throughout. It is perfect in its operations, and will answer for any purpose where it is not required to exhaust too much air in a given time. The valves work perfectly and the whole pump is devised on scientific principles.

Size and Price.

FIG. 623, 2 inches diameter, 18 in. stroke, ... (Quoit) $25.00

FIG. 461.



PNEUMATIC TEST PUMP.

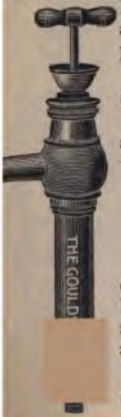
The cut shows a Pump used by plumbers, gas and steam fitters very widely for ascertaining whether pipes leak or not. Can furnish gauge if wanted, at lowest market rates.

Size and Price.

FIG. 461, 2 inch bore, 10 inch stroke, ... (Girt) $12.00

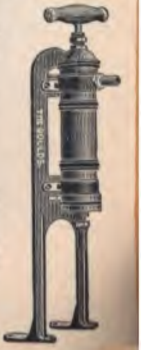
GOULDS BRASS ALE OR BEER PUMP.

'IG. 323.



The cut shows our new and improved Brass Ale or Beer Pump, made with solid brass piston rod, not tube, as some manufacturers use, handsomely finished and polished, and fitted with first-class valves.

FIG. 320.



Size and Price.

FIG. 320, 2¼ in. bore, 8 in. stroke, . (Dusky) $7.00

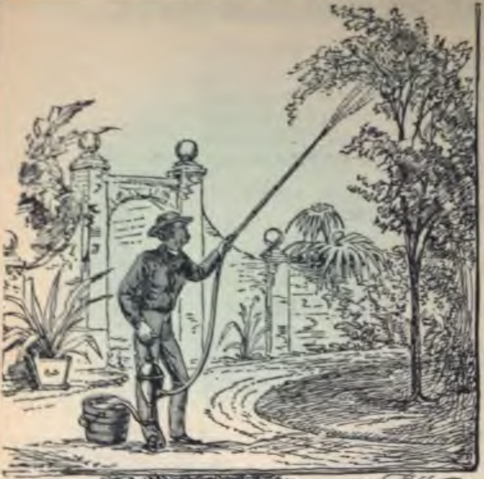
We furnish these Pumps with or without the stands, as ordered.

GAS COMPANIES' AND PLUMBERS' DRIP PUMP.

Fig. 323 shows a Brass Cylinder Suction Pump for extracting the water from Gas Drips. It is substantially built and answers the purpose admirably. Fitted for attaching ¾ or 1 inch iron pipe, as ordered, though always fitted for ¾ inch pipe, unless otherwise stipulated.

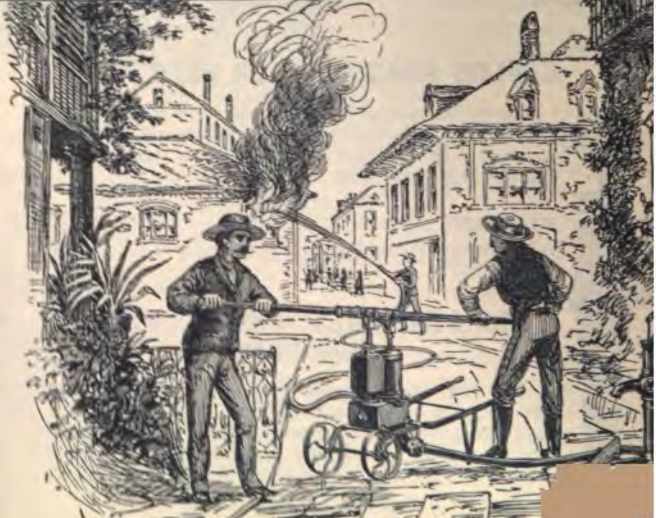
Size, Price, Etc.

FIG. 323, 2 in. bore, 12 in. stroke, . (Dutch) $12.00



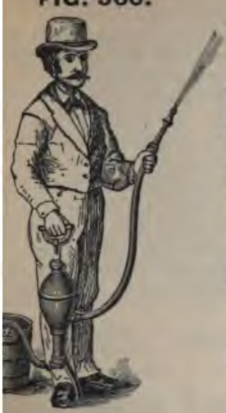
Below we represent
Double-Acting Engine, **Fig.**
in operation extinguishing a
The Engine is adapted for
riety of purposes as it is st
compact and of great cap
We build nothing better
moderate price Engine, and r
mend it, knowing it will mor
fulfil our good words. This E
is more fully described on
177, while pages 174–182 are
to same class of goods.

At the left is a sketch
Fig. 560, which is perha
most popular of these small
able Pumps, and is describ
opposite page.



GOULDS PORTABLE BRASS AQUAJECT.

FIG. 560.



The cut represents in practical operation a very useful and almost indispensable adjunct to every household, factory and warehouse.

It is a very compact and effective Force Pump, so small, weighing only eight pounds, that it can be carried about anywhere without the least difficulty, and at the same time susceptible of the most important results. It is difficult to enumerate the many services this Pump will perform; but for washing windows, wagons, sprinkling lawns, in conservatories, gardens, and for incipient fires, it has no equal.

With each Pump is sent suction and discharge hose connected, so that it requires no labor to put in immediate operation. Longer lengths of hose can be furnished if desired.

Price.

FIG. 560, with 2½ feet ¾ inch suction, and 3 feet ⅝ inch discharge hose, brass discharge pipe and sprinkler, ... (Lay) $9.00

GOULDS PORTABLE BRASS FORCE PUMP.

FIG. 642.

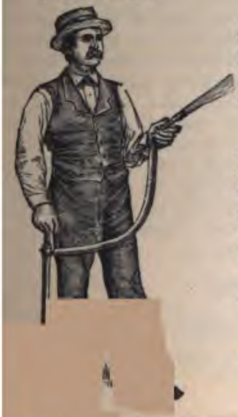


Fig. 642 represents in practical operation our Portable Garden Force Pump, for washing windows and wagons, for use in conservatories, gardens, etc., and for forcing liquids upon trees and bushes, blighted by insects, bugs or worms.

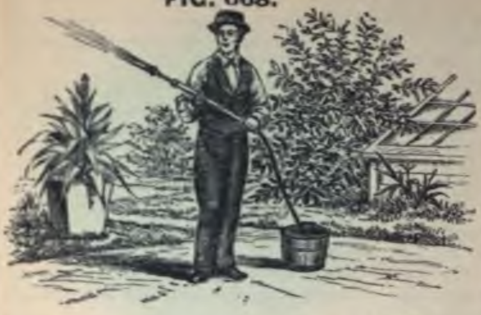
They are made of brass, which gives them a handsome appearance and renders them impervious to the actions of acids and liquids, and will not rust or corrode. With this Pump there is no suction hose, as the Pump sets directly in the water, thus always securing a perfect suction. With each Pump we furnish the extras given in the table below, although they could be changed to suit requirements of customers. Longer lengths of hose are charged extra.

Price.

FIG. 642, with 3 feet ½ inch discharge hose, brass discharge pipe and sprinkler, . (Rang) . $9

GOULDS BRASS HYDRONETTE.

FIG. 668.



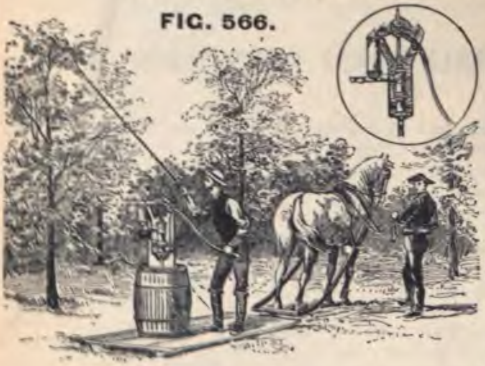
The cut represents in operation our new "Hydronette" or Portable Force Pump, for watering gardens, for diffusing liquids of any kind upon trees or shrubs. It is made of brass, handsomely finished, and so light it may be carried under the arm or in the hand, as most convenient, when one must carry a pail. It carries only suction hose, so no discharge hose demands attention at any time, but by turning the nozzle the water may be distributed in any direction.

Price.

FIG. 668, with 4 feet ⅝ inch suction hose, strainer and sprinkler…… ..(Roam)….$9.00

GOULDS "PACIFIC" BRASS FORCE PUMP.

FIG. 566.



This cut shows in faithf operation one of our "Pacific Force Pumps, with air chamber as they may be utilized for destroying bugs, worms or insect upon plants or flowering shrubs, trees, etc. In this instance the discharge is a piece of light bamboo, which admits the operator directing the stream just where it is needed, without waste of time or mixture. They are made of cast brass, excepting frame or lever, and are heavy and strong. They may also be used as a small House Force Pump in many places.

FIG. 566. Size, Price, Etc.

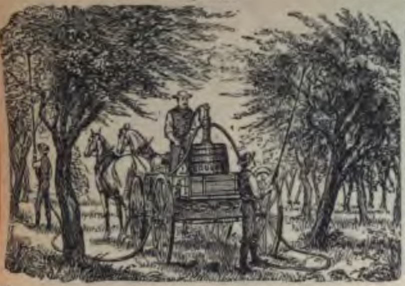
Dia. Cylinder.	Suc. for Lead Pipe.	Disc. for Hose.	Cipher.	Price.
2 in.	1 in.	¾ in.	Led	$16.00

With metallic fitted lower valve, $1.50 net extra.

GOULDS NEW DOUBLE-ACTING SPRAYING PUMP.

FOR SPRAYING TREES, POTATOE AND COTTON PLANTS, ETC.

Fitted with Hose and Discharge Pipes.



We represent in operation our New Double-Acting Force Pump, arranged for either Hose or Gas Pipe Discharge, for spraying Trees, Cotton Plants, etc., with a solution of Tobacco Water, or water diluted with Paris Green or any other poisonous mixture. This Pump is especially adapted for diffusing liquids or poisons of any kind upon trees, shrubs, or plants, affected by bugs, worms, insects, etc., and is capable of doing infinite more service than any of the smaller and cheaper Pumps in the market, as it is of greater capacity, and being double-acting, throws a continuous and powerful stream, which can be diffused over a vast area, by means of spreaders or sprinklers. When used for spraying Cotton Plants, they should be screwed for iron pipe, and arranged with gas pipe arms and sprayers; and for spraying trees, fitted with hose nipples for attaching hose.

We can furnish any fittings as ordered, at lowest market rates. Advise in orders whether wanted for hose or wrought-iron pipe suction and discharges, and if Pumps are wanted fitted complete for any special work we should be so instructed.

Fitted with Gas Pipe and Spreaders.

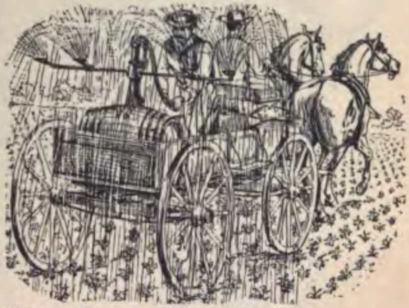


FIG. 805.

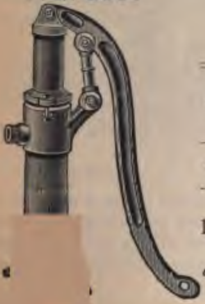


FIG. 805. Sizes, Prices, Etc.

Dia. Outer Cyl.	Suc.	Double Hose Dis.	Double Pipe Dis.	All Brass Piston or smaller Cyl. and Brass outer Cyl.		All Brass Piston or smaller Cyl. and Iron outer Cyl.	
				Cipher.	Price.	Cipher.	Price.
2½ in.	1 in	¾ in.	¾ in.	Washy	$14.00	Waspfly	$8.50

With metallic fitted lower valve and extra long and heavy lever, $2.50 net, extra.

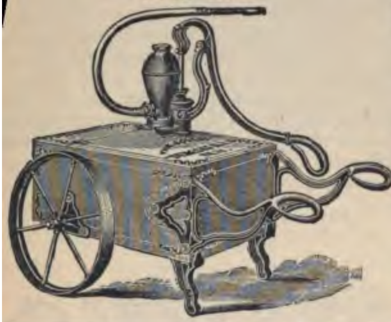
These prices include a brass suction basket, but no pipe, sprayers, hose, or couplings.

Send for special Spraying Pump Catalogue.

GOULDS GARDEN OR FIRE ENGINE.

Fig. 304 represents our Garden Engine, with either wood or iron handles, as lered. The Pump is placed inside a box of dimensions suitably large to hold about barrel of water, and being on wheels is easily moved to any place where it is desirable use it. Fruit growers and nurserymen will thoroughly appreciate this apparatus, hich enables them in seasons of drought to pour down the refreshing water on the arched trees, and endow them with fresh vitality.

FIG. 304.



Below we give prices on this Engine complete as per cut, with 3 feet 1 inch discharge hose and discharge pipe.

FIG. 304. Sizes, Prices, Etc.

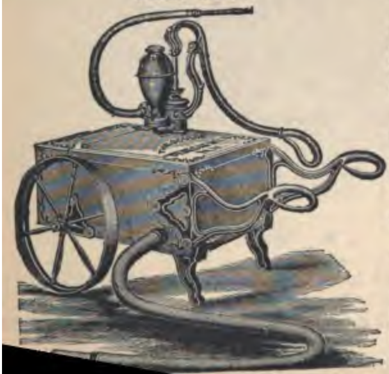
	Dia. Pump	Suc.	Dis.	Cipher.	Price.
With iron handles,	3 in.	1½ in.	1 in.	Drive	26.00
With wood handles,	3 "	1½ "	1 "	Droll	25.00

We can also line these boxes with lead at an extra net charge of $5.00, and with galvanized iron at an extra net charge of $3.00, when they will be unaffected by swelling and shrinking of the wood.

GOULDS GARDEN OR FIRE ENGINE, SIDE SUCTION.

Fig. 309 is very similar to **Fig. 304**, except that it has an opening in the side of the box into which is inserted an attachment with threads cut, on to which can be fastened suction hose. The Engine can then be moved to any point where water is found and operated as long as the water lasts.

FIG. 309.



Below we give price of engine, with 3 feet 1 inch discharge hose and brass discharge pipe. No suction hose is included in prices, but it is fitted for 1½ inch hard suction hose, which we can furnish at lowest market rates.

FIG. 309. Sizes, Prices, Etc.

	Dia. Pump	Suc.	Dis.	Cipher.	Price.
With iron handles,	3 in.	1½ in.	1 in.	Drown	$29.00
With wood handles,	3 "	1½ "	1 "	Drug	28.00

We can also line these boxes with lead at an extra net charge of $5.00, and with galvanized iron at an extra net charge of $3.00, when they will be unaffected by swelling and shrinking of the wood.

GOULDS HAND GARDEN FORCE PUMP.

MOUNTED ON WOODEN BARROW.

The cut represents one of our well-known Hand Force Pumps mounted on wooden barrow. This barrow is light, and the whole can be easily moved about the yard or garden for supplying water upon plants and trees or watering lawns, etc. This engine has no useless parts, and is cheap, simple and effective.

Below we give prices complete as per cut, with 6 feet 1¼ inch suction hose and 3 feet 1 inch discharge hose, hose couplings, discharge pipe, suction basket, etc.

FIG. 640.

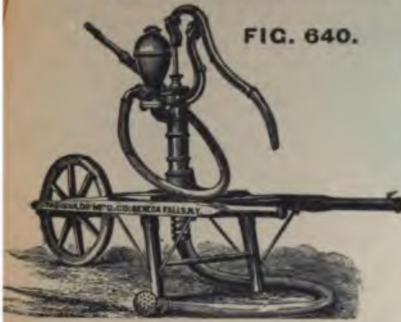
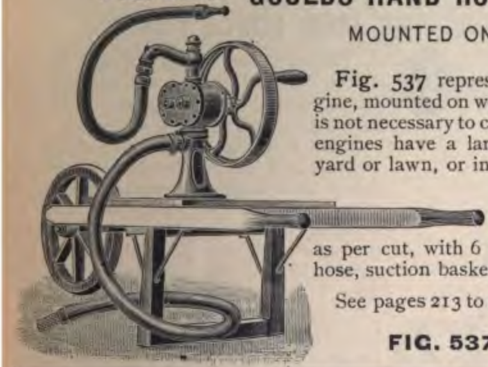


FIG. 640. Sizes, Prices, Etc.

Engine complete, 2½ in. Cyl. (Rain) $23.00
Engine complete, 3 in. Cyl. (Raise) 26.50

FIG. 537.



GOULDS HAND ROTARY GARDEN ENGINE.

MOUNTED ON WOODEN BARROW.

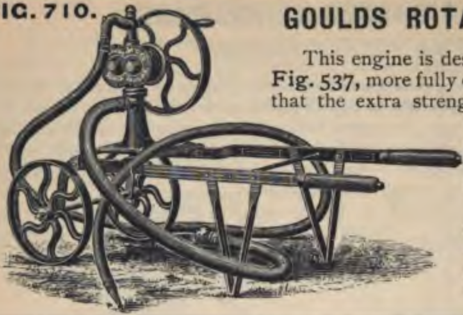
Fig. 537 represents our new Rotary Garden Engine, mounted on wooden barrow. We believe where it is not necessary to carry water with the Pump that these engines have a large sphere of usefulness about the yard or lawn, or in buildings, as they deliver a constant and powerful stream with very little labor. Below we give prices on Engine complete, as per cut, with 6 feet suction and 3 feet discharge hose, suction basket, hose couplings and nozzle.

See pages 213 to 215 for lists of hose, couplings, etc.

FIG. 537. Sizes, Prices, Etc.

No.	Suc.	Dis.	Gal per Min. 100 Rev.	IRON.		BRONZE.	
				Cipher.	Price.	Cipher.	Price.
1	1¼ in.	1 in.	13	Kink	$29.50	Flask	$51.50
2	1¼ "	1 "	14	Kirk	32.50	Flat	56.50
3	1½ "	1¼ "	17	Kite	36.50	Flaw	61.50
4	1½ "	1¼ "	27	Kine	46.00	Flax	76.00
5	2 "	1½ "	36	King	52.00	Flay	87.00

FIG. 710.



GOULDS ROTARY GARDEN ENGINE.

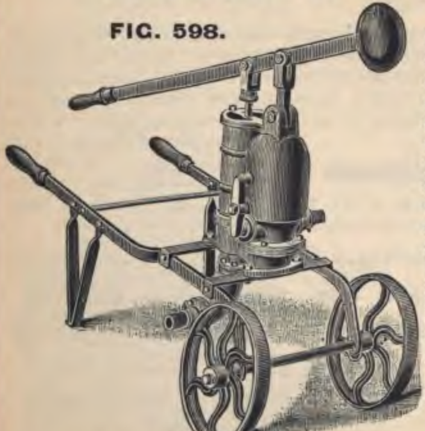
This engine is designed for the same purposes as our **Fig. 537,** more fully described on previous page, except that the extra strength given it by the strongly bolted wrought-iron frame and iron wheels, running on turned axles, render it better adapted for the indiscriminate use of employees.

Below we give sizes and prices complete, as per cut, with six feet suction and three feet leading hose, suction basket, hose couplings and nozzle.

No.	Suc.	Dis.	Gal. per Min. 100 Rev.	IRON.		BRONZE.	
				Cipher.	Price.	Cipher.	Price.
1	1¼ in.	1 in.	13	Scrip	$35.00	Seal	$57.00
2	1¼ "	1 "	14	Scrub	38.00	Seam	62.00
3	1½ "	1¼ "	17	Scud	45.00	Sear	70.00
4	1½ "	1¼ "	27	Scull	55.00	Seat	85.00
5	2 "	1½ "	36	Sea	60.00	Synod	95.00

GOULDS SINGLE ACTING IRON FORCE PUMP.

FIG. 598.



The cut shows a portable Lift and Force Pump of great power and capacity for watering lawns, gardens, etc., and extinguishing fires when necessary. The cylinder is of hard brass, 4¼ inches diameter, and cannot be bruised or injured, as a shell of cast-iron surrounds it completely. The valves are made of rubber, and can be got at very easily by unscrewing the nut holding the clamp on side of air chamber and removing the door. With each Engine belongs 6 feet 1½ inch spiral suction and 12 feet 1¼ inch discharge hose, with brass couplings for each size; a suction basket, brass hose nozzle, spreader, and wrenches for nuts and hose.

FIG. 598. Size, Price, Etc.

Engine complete as described (Mist)	$43.00

Longer lengths of hose can be furnished, if desired, at extra price. See pages 213 to 215 for lists of hose, couplings, etc.

ULDS DOUBLE-ACTING GARDEN OR FIRE ENGINE.

S-LINED CYLINDER, MOUNTED ON WROUGHT-IRON BARROW.
TWO WHEELS.

FIG. 630.

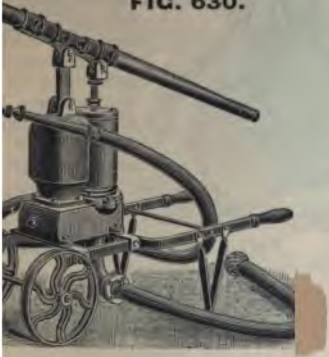


Fig. 630 shows a portable Double-Acting Lifting and Forcing Engine, constructed with a view to great compactness and capacity. The cylinder is of hard brass, 5 inches diameter, surrounded by a wall of cast-iron. It will throw a fine stream through a half-inch nozzle from 80 to 100 feet, and be found to be very effective for any purpose required of such a machine. For cities or villages with narrow streets this Engine is admirably adapted.

Below we give price of Engine complete, including 12 feet of 1½ inch leading and 6 feet of 2 inch suction hose, brass hose pipe and spreader, hose couplings, suction basket, etc.

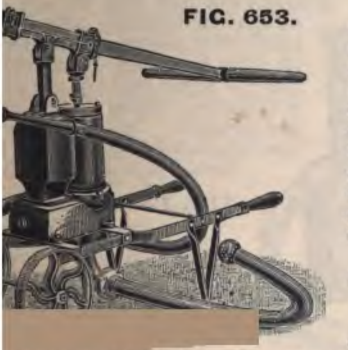
FIG. 630. Price.

Engine complete, as shown in cut,
(Race)........ .. .. $58.00

ULDS DOUBLE-ACTING GARDEN OR FIRE ENGINE.

RASS-LINED CYLINDER, MOUNTED ON WROUGHT-IRON BARROW,
AND WITH WROUGHT-IRON EXTENSION LEVERS.

FIG. 653.



This is the same Engine as described above, except that this is provided with wrought-iron adjustable arms with wood brakes, on which six to eight men can work, and is consequently capable of performing greater service. Below we give price of Engine complete as per cut, with 6 feet 2 inch spiral suction hose and 12 feet 1½ inch discharge hose, brass hose pipe and spreader, hose couplings, suction baskets, etc.

FIG. 653. Price.

Engine complete, as shown in cut,
(Ravel)........ .... $64.00

Longer lengths of hose furnished if desired, at extra price.

ges 213 to 215 for lists of hose, hose couplings, etc.

GOULDS GARDEN OR FIRE ENGINE, SIDE SUCTION.

Fig. 456 illustrates a small Fire Engine with a water reservoir of
two barrels. Wa
be taken either fr
box, or by att
suction hose to th
ling at the end
box, be drafted
other sources. Pun
inder is 4 in. di
and plunger has
stroke. Each n
has 5 feet 1 inc
and hose pipe.

FIG. 456.

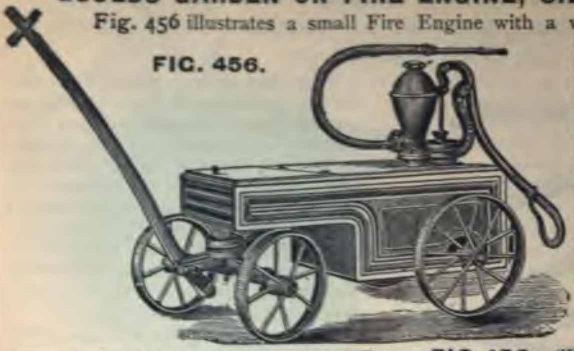
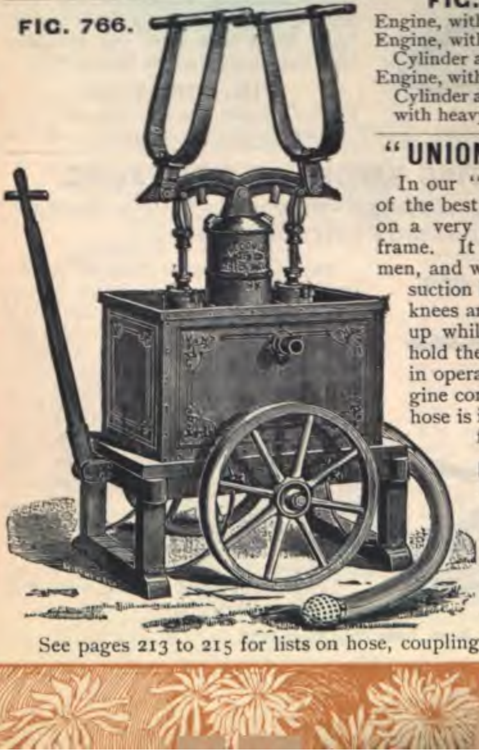


FIG. 456. (Waterpot) **Prices.**

Engine, with Iron Pump, ...
Engine, with Iron Pump with Brass-lined
Cylinder and Brass Plunger, . . .
Engine, with Iron Pump with Brass-lined
Cylinder and Brass Plunger. Box lined
with heavy sheet lead, ...

FIG. 766.



"UNION" HAND FIRE ENG

In our "Union" Engine the tank i
of the best galvanized wrought iron, a
on a very heavy and strongly boltec
frame. It can be operated by from tw
men, and will draw from the tank or t
suction hose from any other supply
knees are so constructed that they v
up while being moved, and when i
hold the engine firmly on the groun
in operation. Below we give price
gine complete. No suction or di
hose is included in these prices, but
furnish same at lowest marke

FIG. 766. (Waterram). F

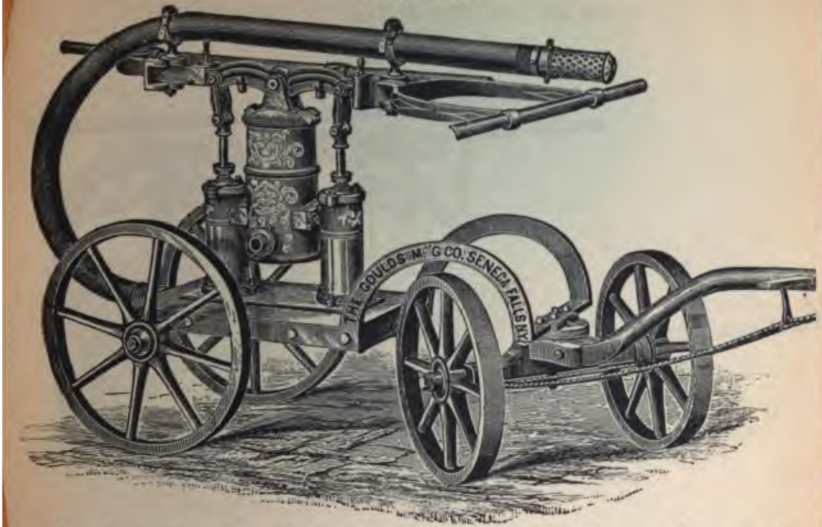
Dia. Cyl.	Suc.	Dis.	Iron Cyls.
3½ in.	2½ in.	1¼ in.	$90.00
4 "	2½ "	1½ "	100.00
4½ "	3 "	2 "	120.00

See pages 213 to 215 for lists on hose, couplings, discharge pipes, etc.

GOULDS SWAN NECK VILLAGE FIRE ENGINE.

WITH GUN METAL CYLINDERS.

FIG. 465.


THE GOULDS M'F'G CO. SENECA FALLS N.Y.

The above cut will readily commend itself to all villages and towns where a good Engine is required at a moderate expense—and where it is desired to have something in which is embodied all the elements of a first-class Engine, so far as the Pump is concerned, without any useless outlay upon a reservoir or box. These Engines are as well built as those much more expensive, being well ironed and made with strong wooden wheels with wrought-iron tires, hard wood pole and brakes, fifth wheel, reversible and folding brakes, etc., etc. The cylinders are of gun metal, the valves of approved patterns, and everything as complete as first-class workmanship and the best of material can make them. From eight to twelve men can work on them, and with this power a nice stream of water can be forced on to buildings of ordinary size.

FIG. 465. Sizes, Prices, Etc.

No.	Dia. Cyl.	Suc.	Dis.	Stroke.	Gal. per Rev.	GUN METAL CYLINDERS.	
						Cipher.	Price.
10	4½ in.	2½ in.	1½ in.	6 in.	7-8	Glaze	$200.00
16	6 "	3 "	2 "	8 "	2	Gleam	280.00

The above prices do not include any hose. For list on hose, couplings, etc., se
pages 213-215.

GOULDS WAREHOUSE OR PLANTATION FIRE ENGINE.

WITH FOLDING BRAKES—FITTED FOR ATTACHING SUCTION HOSE.

ROOM ON THE BRAKES FOR TEN MEN.

FIG. 539.

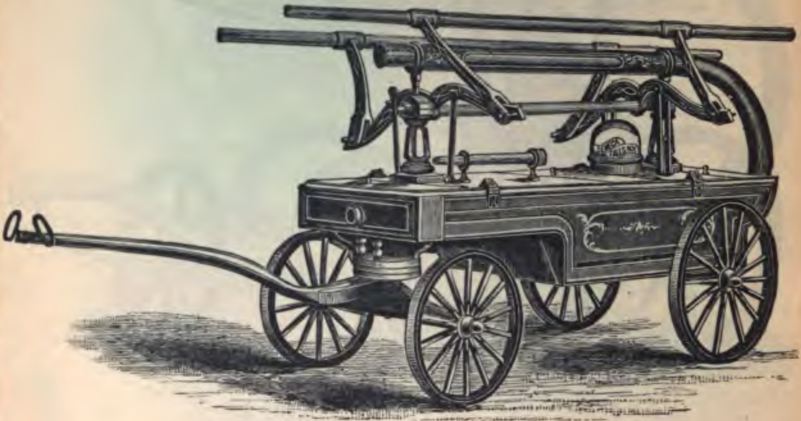


Fig. 539 represents our Warehouse or Plantation Fire Engine, constructed especially for use in tropical climates, with brass cylinder, 4½ inches calibre by 7 inches stroke, brass piston, valve seats; folding brakes of wrought-iron, wheels of best seasoned hickory wood (iron bound), patent iron hubs, and patent wrought-iron axles; the whole constructed in a thoroughly reliable manner, to meet such emergencies as usually arise at times of fires, viz.: the encountering of rough obstacles, running through narrow and roughly paved streets, etc. We furnish without extra charge 25 feet discharge hose and brass discharge pipe. Fitted for attaching suction, which we furnish when ordered. This engine will throw a ½ or ⅝ inch stream about 100 feet.

Size and Price.

FIG. 539. Plantation Fire Engine, suitable for discharge hose of 1½ inch calibre, and suction hose of 2 inch calibre, each, net, ... (Lade) $325.00

GOULDS FIRE ENGINE, WITH DOUBLE BRAKES.

ROOM ON THE BRAKES FOR TWENTY MEN.

FIG. 460.

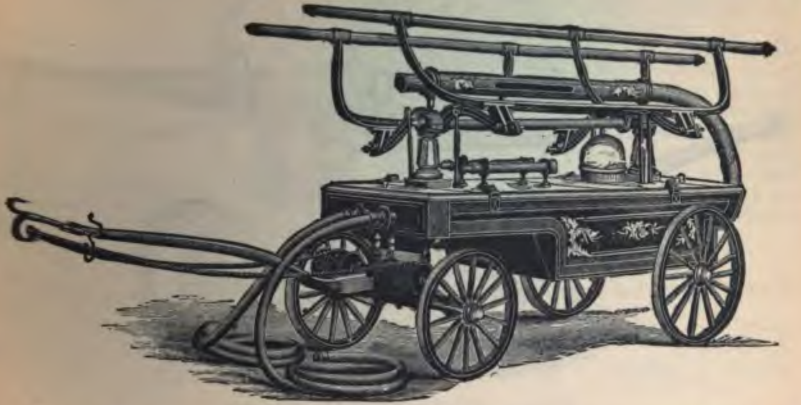


Fig. 460 represents our New and Improved Engine, very compact, durable and strong. It is excellently adapted for the purposes of fire protection to villages, colonies, etc., being convenient, portable, and capable of severe and sustained work. The Cylinders are of brass 5½ inch calibre and 7 inch stroke.

The Brakes are of side-folding design, made of wrought iron, 11 feet in length, and can be operated by sixteen men. The wheels are constructed of best hardwood timber, iron bound, of 27 and 33 inches in diameter. A reel is also attached for drag rope. The valve and valve seats are of approved pattern and made of gun metal, rendering the machine serviceable in all conditions of climate, and especially suiting it for export. Like all our larger engines it is arranged to draw water from the box or tank when filled from buckets, and also to draft through suction from well or reservoir. Weight 1,400 pounds. This Engine will throw a ⅝ or ¾ inch stream of water 125 feet. The price given below includes a brass strainer, brass discharge pipes, extra nozzles, and all requisite wrenches, etc., in complete readiness for service.

Size, Price, Etc.

FIG. 460. 5½ inch Brass Cylinders, for 2 inch Discharge and 3 inch Suction Hose, each, net, ... (Wedge) $500.00

GOULDS NEW SWAN NECK VILLAGE FIRE ENGINE.

WITH FOLDING BRAKES FOR TEN MEN.

FIG. 549.

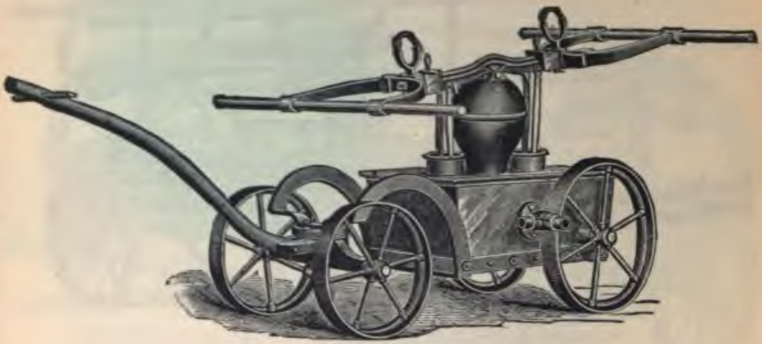


Fig. 549 represents a strong, durable and very capacious Fire Engine, which we have made particularly for such localities where the streets are very narrow and require elements of compactness in order to be available. The cylinders, valves and valve seats are of gun metal, the whole constructed of the very best material and in the most substantial manner. The reservoir or tank is made of galvanized iron, 3 feet long, 2 feet wide and 16 inches deep. The brakes fold in such a manner that when folded they are lengthwise of the machine and in position from 15 to 20 men can work on them. We can arrange these engines for either one or two streams as ordered; also, when desired, so that the suction can be taken from the reservoir as well as at the end of the Engine.

Size, Price, Etc.

FIG. 549. Engine complete, 6 in. cylinders, 3 in. suction, 2 in. discharge, 7 in. stroke. . . . . (Mail) $300.00

See pages 213-215 for lists of hose, hose couplings, discharge pipe, etc.

GOULDS HAND HOSE CART.

This Cart is substantially built, the frame and tongue being forged from Burden iron, in one piece. The reel has capacity for 600 feet of rubber fire hose, and is worked by means of handles. It has iron hubbed wheels, with steel tires.

The appurtenances consist of 100 feet of manilla drag rope, rope reel, holders for play-pipe, axe, tool box and wrenches. The painting is English vermilion, nicely striped, and the hub-caps are nickel-plated.

FIG. 542.

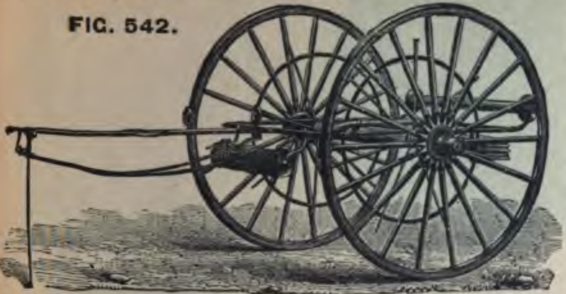


FIG. 542. Size, Price, Etc.

Size.	Capacity Rubber Hose.	Length.	Width.	Height.	Cipher.	Price.
No. 2.	600 ft.	10 ft. 5 in.	5 ft. 8 in.	5 ft. 4⅜ in.	Wankle	$175.00

GOULDS MILL HOSE CART.

These Carts are made of wrought-iron tubing, with our own special fittings, and are strong and durable, but at the same time light and easy to handle. They have steel axles, and bicycle wheels with steel tires, and are particularly adapted for use about mills, factories, and public buildings. Furnished with wooden wheels, if preferred. They are nicely painted and striped, and the hub-caps are nickel-plated.

FIG. 533.

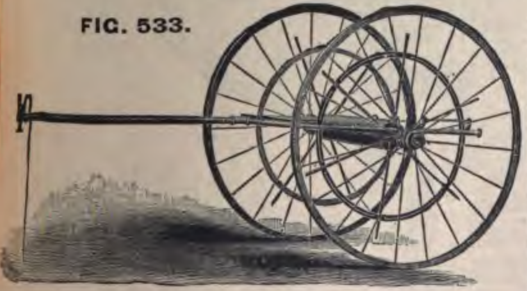
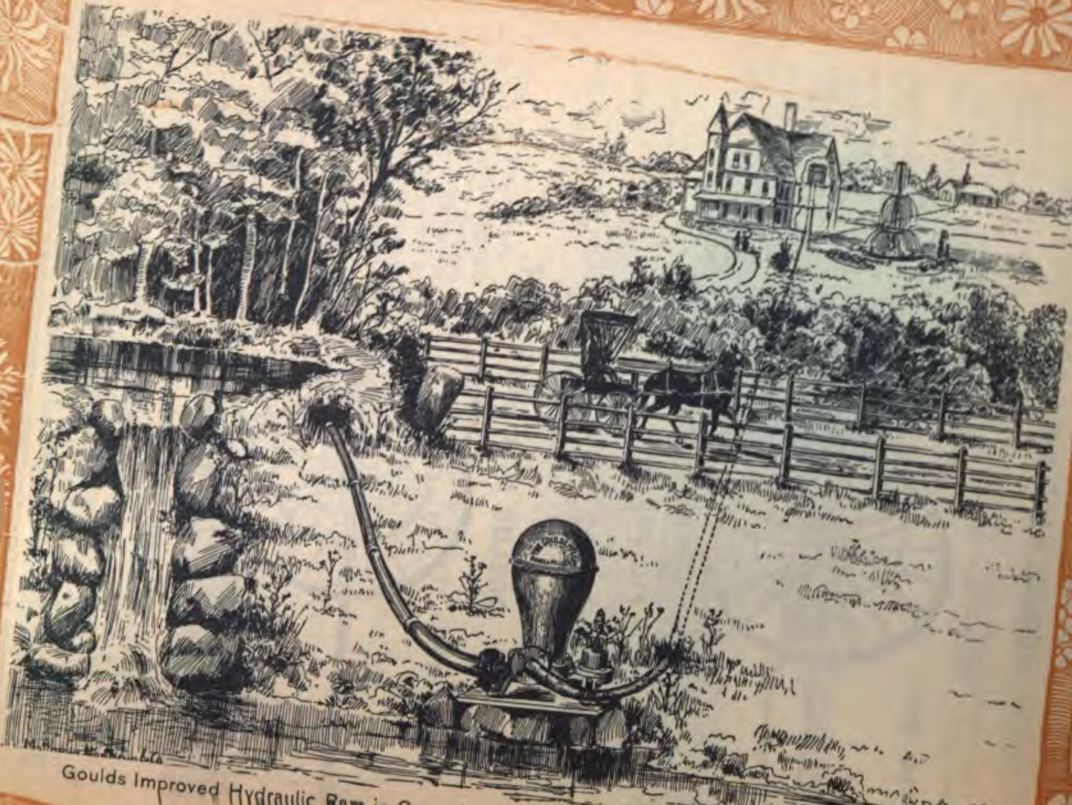


FIG. 533. Sizes, Prices, Etc.

Size.	Capacity Rubber Hose.	Length.	Width.	Height.	Cipher.	Price.
No. 1.	500 feet.	9 ft. 2 in.	4 ft. 10½ in.	4 ft. 10⅜ in.	Wanly	$80.00
No. 2.	300 "	8 " 1 "	4 " 4 "	4 "	Wannish	60.00
No. 3.	200 "	7 " 4 "	4 " 4 "	3 " 6 "	Want	50.00



ULDS MANUFACTURING Co.

Goulds Improved Hydraulic Ram

GOULDS IMPROVED HYDRAULIC RAMS.

FOR SUPPLYING DWELLINGS, FACTORIES, RAILROAD STATIONS, STOCK-YARDS, ETC., WITH RUNNING WATER.

THE HYDRAULIC RAM AS WE BUILD IT to-day represents the most efficient and automatic labor-saving device known for raising water any distance where a sufficient supply and head are attainable and the slight expense for first outlay and maintenance considered render them most desirable for supplying running water in any quantity to residences, villages, etc. With an experience of 35 years in their manufacture, and a practical knowledge of the requirements necessary for their successful operation, we are able to offer the most perfect and efficient Ram in the market. Our castings are all heavy in pattern and of proportionate strength. The air chambers are larger than those of any other Ram, thus relieving it of all undue strain and aiding its working, while the valve stem and case (made of best bronze metal) are of a new and improved design calculated to develop the greatest possible efficiency.

The cut on opposite page represents one of our Improved Hydraulic Rams in operation, furnishing water for house, fountain, barns, etc. A few words will explain our plan. The water is taken from the supply at the left through the Drive Pipe—the length and fall of same to be determined by results required—and forced upwards through the Discharge Pipe to the point of delivery. The conditions and requirements under which Rams are operated are so varied, that we have thought best to treat these under separate heads, believing our customers will appreciate this arrangement, which will enable each purchaser to make his own selection from our goods, or furnish such data that we can readily make estimates and recommendations.

HEAD OR FALL OF DRIVE PIPE. Rams will work, and successfully, where the spring or brook is only 18 inches higher than the Ram; yet, as the height or head increases, the more powerful the ram operates, and its ability to force water to a greater elevation and distance correspondingly strengthens.

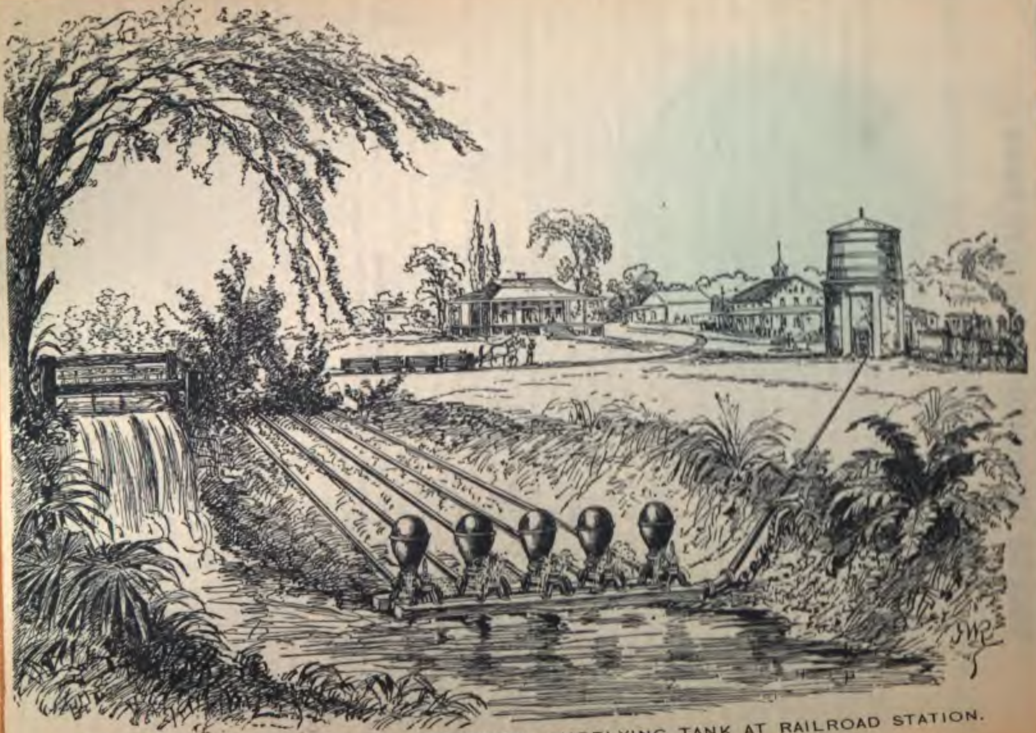
Thus, as shown in our table of TESTS, we have a varying head of 10 to 25 feet, proportioned to height water is to be raised and quantity required. As a specific example, we might say a fall of 10 feet from the brook or spring to the Ram is sufficient to raise water to any point, say, 150 feet above the machine, while the same amount of fall would also raise water to a point considerably higher, though the quantity of water discharged will be proportionately diminished as the height and distance increase.

Again, when the requisite quantity of water is forthcoming from the Ram, operating under a certain fall, it is not judicious to increase this, for by so doing the strain on the machine is augmented, those parts doing the labor are overtaxed, and the durability of the Ram lessened.

LENGTH OF DRIVE PIPE. Practical experience and experiments have proven that the best results are obtained where there is ample, though not excessive, length as well as fall to the Drive Pipe, for the weight of this volume of water is an important auxiliary in forcing water into the air chamber and through the Delivery Pipe.

We recommend drive pipes to be 50 to 75 feet in length, though in very heavy lifts this may be advantageously increased to 125 and even 200 feet. In cases where this is not practicable the pipe may be bent in a coil five or six feet in diameter.

WATER FURNISHED RAM. The quantity of water furnished a Ram, or amount requisite to operate it, is determined by the size and fall of head or Drive Pipe, and would refer to our tables giving the contents in gallons or fractions of gallons in pipes and also to our table of tests showing the relative quantities of water forced through Drive Pipes under different heads. Where the supply of water is limited there is no simpler or better plan of determining this quantity than to measure in pails or barrels the number of gallons which can be led in pipes from the spring or brook per minute or in any given length of time.



BATTERY OF GOULDS RAMS IN OPERATION, SUPPLYING TANK AT RAILROAD STATION.

See following pages for description and prices.

RAISED AND WASTED. The relative height of the spring or supply m, and the elevation to which it is required to raise, determine the relative pro- en the water raised and wasted — the quantity raised varying according to the nveyed with a given fall; also, the distance the water has to be conducted, and ngth of pipes, have some influence on the quantity delivered at the point of the more extended the pipes through which the water has to be forced by the e friction there is to be overcome.

ry purposes it is sufficient to say that in conveying water, say, 50 or 60 rods, it calculated that one-seventh of the water can be raised and discharged at an times as high as the fall, or one-fourteenth part can be raised and discharged, as high as the fall or height of Drive Pipe.

a fall of five feet for every seven gallons drawn from the fountain, one may ty-five feet, or half a gallon fifty feet, or with ten feet fall, one gallon of every be raised to the height of 100 feet, and so in proportion as the fall or height is

IONS FOR PLACING RAMS AND PIPES.—Rams should always heavy timbers or masonry and not be dependent merely upon pipe connections. tant, as there is a constant concussion and strain upon the Ram, and it should undation as we recommend.

and pipe should also be carefully protected against frost, and turns in either harge Pipe should be avoided if possible. When it is impossible to set the having elbows in the pipes, make the elbows as large as may be, so as to place ction to the free and easy flow of water as is practicable.

ION OF RAMS.— With a given supply of water under a great fall the quired to be of as large size as for the same quantity of water under a less fall. and 345 1-2 represent our Single Hydraulic Rams, which can be fitted for or lead pipe, as desired. **Figs.** 346 and 346 1-2 are for very heavy lifts, as w, as is also our plan for combining a battery of Rams playing into a single e.

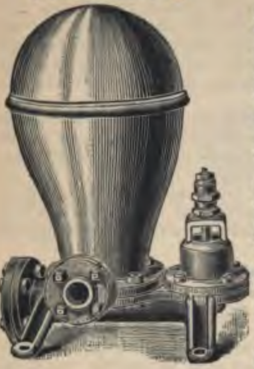
TES.— We are always glad to be consulted on any matters pertaining to paratus and will cheerfully make recommendations and prepare estimates, etc., . To do this, however, we should be definitely advised on the following points: ater which can be supplied to the Ram. Quantity of water desired to elevate time. Fall or head and distance from spring or brook to desired location of t to which the water is to be raised.

RIES OF RAMS.— We have frequent inquiries for Rams of greater capac- uild, and to meet this demand offer a combination or battery of any number of into a single discharge pipe, as illustrated on opposite page, which possesses ges over the largest Rams which it might be practical or profitable to make. ction we might say we build the largest Rams of any manufacturer, for the of capacity is not the nominal number given same but the size of the drive pipe. ctice and tests with our Rams have demonstrated the feasibility of employing circumstances hitherto considered impractical as, in fact, they are with other rtain types of our own which are especially built for heavy service. Reference ings, **Figs.** 346 and 346 1-2, will show in a measure how these Rams have been in all parts, while we can still further increase their efficiency by substituting a roved style of brass poppet or spring valve in place of the ordinary leather one mber, thus rendering them metallic fitted throughout.

nd 346 1-2 are identical in their construction, the Double Ram simply showing of two Rams, while this number can be increased at will.

e time, as above stated, these combinations offer certain advantages over Single each Ram receives its water through a separate drive pipe, the strain is not so or Rams as if but one Ram were used, and then, too, in the event of accidents at supply is not suspended, for each of the Rams acts independent of the others.

FIG. 345 1-2



FIGS. 345 and 345 1-2. Sizes, Prices, Etc.

No.	Gal. water furnished per minute to Ram.	Length of Drive Pipe.	CALIBRE PIPES.		Price.
			Drive.	Dis.	
2	1 to 2	50 to 75 ft.	¾ in.	½ in.	$ 9.00
3	2 to 4	50 to 75 ft.	1 "	½ "	11.00
4	3 to 7	50 to 75 ft.	1¼ "	¾ "	14.00
5	6 to 10	50 to 75 ft.	2 "	1 "	22.00
6	11 to 25	50 to 75 ft.	2½ "	1¼ "	40.00
7	25 to 45	50 to 75 ft.	3 "	1½ "	75.00
8	45 to 75	50 to 75 ft.	4 "	2 "	125.00

FIG. 345.

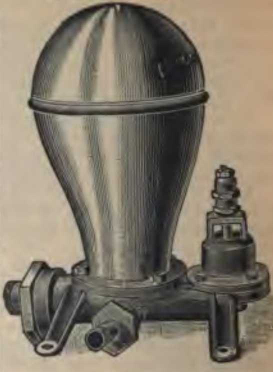


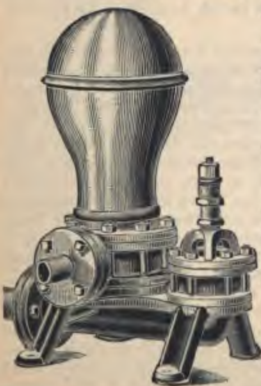
FIG. 346 1-2 Single Ram. Sizes, Prices.

No.	Gals. water from source per min.	Length of Drive Pipe.	CALIBRE PIPES.		PRICES.	
			Drive.	Dis.	Leather Valves.	Brass Poppet Valves
6	11 to 25	50 to 200	2½ in.	1¼ in.	50.00	62.50
7	20 to 40	50 to 200	3 "	1½ "	85.00	100.00
8	25 to 75	50 to 200	4 "	2 "	130.00	150.00

FIG 346. Double Ram, Sizes, Prices.

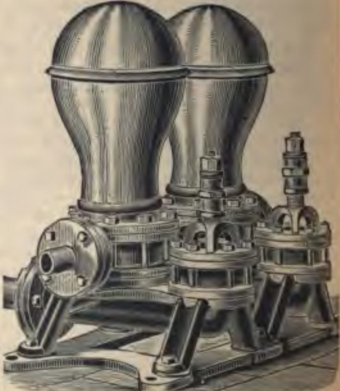
No.	Gals. water from source per min.	Length of Drive Pipe.	CALIBRE PIPES.		PRICES.	
			Drive.	Dis.	Leather Valves.	Brass Poppet Valves.
6	11 to 25	50 to 200	2½ in.	1½ in.	100.00	125.00
7	20 to 40	50 to 200	3 "	2 "	170.00	200.00
8	25 to 75	50 to 200	4 "	2½ "	260.00	300.00

FIG. 346 1-2.



The size of the discharge pipe should vary in proportion to the distance the water is to be conveyed, as the greater the distance the larger the pipe in proportion to the size of the machine. Always use size drive pipe called for. By means of an ADJUSTER applied to each of our Rams, the quantity of water drawn from the fountain may be varied at pleasure—thus readily adapting the machine to a *variable supply*. **Fig. 345** can be fitted for wrought-iron or lead pipe, as ordered; **Fig. 345 1-2** for wrought-iron pipe only.

FIG. 346.



LUDLOW'S RUBBER-FACED SLIDE GATE FIRE HYDRANT.

POSSESSES THE FOLLOWING MERITORIOUS FEATURES.

FIG. 825.

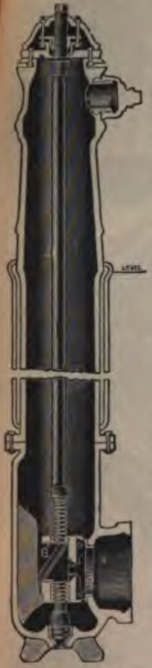
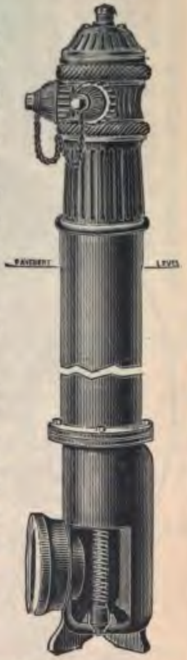


FIG. 825.



Its rubber-faced gate will prevent leaking, however much the brass seat ring may be scratched or marred. A test of over fourteen years has proven that the rubber used by us for this purpose is more desirable than metal or leather.

The drip is directly in the bottom of the hydrant and drains perfectly. It is protected by its valve, which never leaves its socket and cannot be clogged.

This Hydrant is anti-freezing, because when the drainage is good no water is left in it to freeze.

Frost Cases are furnished when required, but thousands of these Hydrants are now in use in the coldest parts of this country without them, and are giving entire satisfaction. It is extremely simple in its construction; all the inside parts can be easily removed through the top in a few moments, thus avoiding all digging or disturbing the body of the Hydrant.

Prices will be furnished upon application on receipt of following information:

Diameter of Stand Pipe.

Length of Hydrant from surface of ground to bottom of connecting pipe.

Size of bottom connection.

Number and size of nozzles.

Kind of nut, whether four or five sided and length of side.

Whether you wish to open the Hydrant by turning to the right like the hands of a watch, or to the left.

Well named and well built are our "Star" and "Crescent" Hydrants and Washers, shown here in operation. What can add more to the appearance of a house or the comfort of its inmates than a well kept and well watered lawn and what more exasperating than a leaky, defective Hydrant requiring constant repairs and resetting. We guarantee our goods against all defects of material or workmanship and their universal adoption and popularity is a most marked proof of their merits. See following pages for descriptions and prices.

GOULDS "CRESCENT" HYDRANT AND STREET WASHER.

FIG. 860.

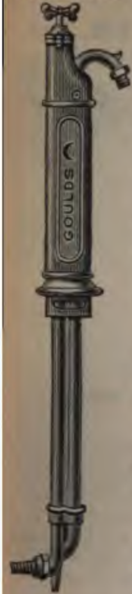
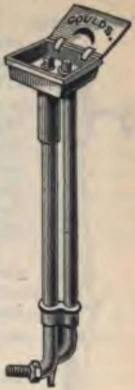


FIG. 861.



The cuts show our new "Crescent" Cast Iron Stock Hydrant and Street Washer, with all necessary parts Brass, and two pipes—one dry, through which the valve can be withdrawn for repacking, the other forming a passage for the water to the spout. *They are perfectly anti-freezing. The valve closes against the pressure; the waste is ample and reliable, and no water whatever can enter the dry pipe.*

In our new style Hydrant, it will be noticed we have substituted a bolted top cap, admitting its ready removal and withdrawal of plunger valve without trouble; also a heavy, double threaded brass screw actuating valve below.

The Hydrant Stock is made in halves, bolted together, and the mouldings are nicely gilded, making the Hydrant of great utility and completeness, as well as an ornament to the lawn and sidewalk.

A spring cotter above the hand wheel prevents its slipping off from end of screw, as well as permits its removal if a water license requires it. A brass nipple, for attaching hose, screws into spout.

The Street Washer has the same valves, pipes, etc., as are used with the Hydrant, while either of them can be connected to lead or iron pipe, thus saving the carrying of a stock of each kind. No essential feature has been omitted or neglected, hence we can guarantee them to be superior in every respect to any similar goods offered for sale.

The male screw or inlet opening of valve case will take a ¾ inch gas pipe socket or coupling, when gas pipe is to be connected.

FIGS. 860 and 861. Sizes, Prices, Etc.

To set in Ground.	FIG. 860. Side Inlet for ¾ inch Pipe.		FIG. 861. With Key, Side Inlet for ¾ inch Pipe.	
	CIPHER.	PRICE.	CIPHER.	PRICE.
18 in.	Wage	$ 9.25	Wailment	$ 7.75
24 "	Wagel	9.50	Wain	8.00
36 "	Wager	10.00	Wainage	8.50
48 "	Wages	11.00	Wair	9.50
60 "	Waggish	12.00	Waist	10.50
72 "	Waggle	13.00	Waister	11.50

GOULDS "STAR" HYDRANT AND STREET WASHER.

WITH COMPRESSION VALVES.

FIG. 646.

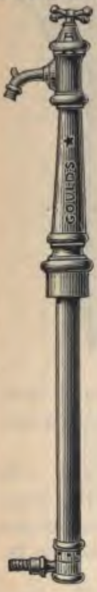
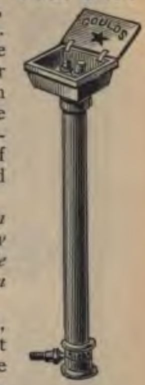


FIG. 647.



These goods have been on the market now for several years, and are so familiar to those who have used them, that any description of their superior merits is unnecessary. (There is not much opportunity to display constructive taste in a Street Washer, but it is universally conceded that our Hydrant is handsome in design and finish, and is quite an addition to the appearance of a yard or lawn.) We have allowed no opportunity to pass to improve both our Hydrants and Washers; and while in general the principle of their mechanism is unchanged, many minor changes and improvements have been made.

They are perfectly anti-freezing. They are made to set in the ground any depth, from eighteen inches to six feet. They are almost instantly opened or closed by means of the double threaded brass screw actuating the valve below. They can be repaired from the top without digging up.

They have a brass swivel or coupling nut (not an iron one), and the tube for service pipe connection is ground to a joint with the valve case elbow. They readily sell for more money than any others, because no others bear any comparison with them. In fact they are *ne plus ultra.* It would always be well to have a short piece of lead pipe between coupling and service pipe, as its flexibility will prevent a fracture of the pipe when the frost heaves the ground, and in clay soil to make some provision for drainage of waste water, if it be nothing more than a small body of gravel or sand between bottom attachment and clay. We measure from ground line to centre of service pipe inlet. An Iron *Turn Key* goes with each Street Washer.

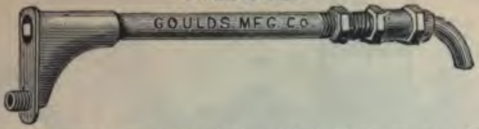
Every Hydrant and Washer is thoroughly tested before leaving our factory.

FIGS. 646 and 647. Sizes, Prices, Etc.

Length to set in the Ground.	Fig. 646. ¾ inch.		Fig. 647. ¾ inch.		Fig. 646. 1 inch.		Fig. 647. 1 inch.	
	Cipher.	Price.	Cipher.	Price.	Cipher.	Price.	Cipher.	Price.
18 in.	Veneering	$9.25	Venger	$7.75	Ventana	$11.75	Veracity	$9.25
24 "	Venefice	9.50	Venial	8.00	Venter	12.00	Veranda	9.50
30 "	Venomous	9.75	Venison	8.25	Ventilate	12.25	Verb	9.75
36 "	Venene	10.00	Venom	8.50	Ventilator	12.50	Verbal	10.00
42 "	Venerate	10.50	Venous	9.00	Venture	13.00	Verbality	10.50
48 "	Venerator	11.00	Vent	9.50	Venue	13.50	Verbatim	11.00
54 "	Veney	11.50	Ventage	10.00	Venulose	14.00	Verbiage	11.50
60 "	Venge	12.00	Ventail	10.50	Venus	14.50	Verbose	12.00
72 "	Vocal	13.00	Vocalist	11.50	Vocalic	15.50	Vocality	13.00

GOULDS "STAR" WALL HYDRANT AND WASHER.

FIG. 648.



The above cut represents our new design Wall Hydrant and Washer with compression valve, made of solid brass, with 1 inch wrought-iron connecting pipe and wrought-iron rods. The water is taken from the inside and can be opened or shut off from the outside. The connection is effected on the inside by means of a brass swivel or coupling nut and elbow fitted for lead pipe, while the hub on the outside is cut for either ¾ or 1 inch hose coupling, as ordered. The valve is opened and closed against a brass valve seat by means of a double threaded brass screw, operated by a key, which we furnish.

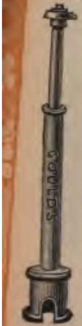
FIG. 648. Size and Price.

Brass to take ¾ inch Hose, ...	(Verdancy)	$7.50
Nickel-plated, to take ¾ inch Hose, ...	(Verdant)	8.50

Can furnish for 1 inch hose at same price, if so ordered. Long lengths made to order at an increase in price.

FIG. 649.

GOULDS NEW ADJUSTABLE CURB BOX.



The cut shows our New Adjustable Curb Box for opening or closing cock in service pipe, as many times becomes necessary in making repairs or changes in the pipes in buildings or in hydrants in yards.

The outside case is made of cast-iron and is 22 inches high, while through this can be moved to any desired length the piece of 1 inch pipe enclosing rod. The lower end of this rod is forked in proper shape to take and turn the lever of service or corporation cock.

FIG. 649. Size and Price.

Size Pipe.	Length Pipe.	Length Rod.	Extreme Length.	Cipher.	Price.
1 in.	42 in.	43 in.	62 in.	Vicar	$3.00

Wrought-Iron Keys, each, ... $ .75

FIG. 827.

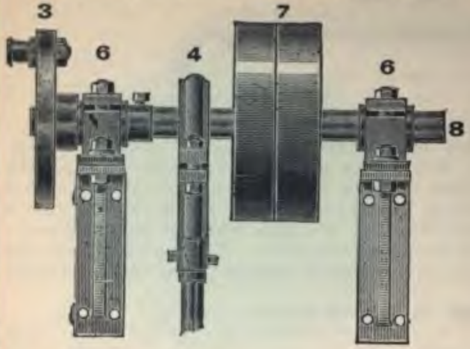
CURB BLOCK.

Fig. 827 shows a very neat and serviceable Curb Block to be used in connection with above. The Block measures 7 x 7 inches, with opening to receive cap of Curb Box.

Price.

FIG. 827, each, ... (Wand) $ .60

GOULDS PUMP AND MACHINERY DRIVING APPLIANCES.



4

1

2

3

6

5

1. Wrought Single Throw Crank.
2. Wrought Double Throw Crank.
3. Cast-Iron Face Plate.
4. Eccentric.
5. Connecting Rod Ends and Strap Heads.
6. Cast-Iron Plummer Blocks.
7. Turned and Finished Pulleys.
8. Shafting.

Prices on application or orders executed at lowest market rates.

GOULDS HYDRAULIC AIR CHAMBERS.

FIG. 531.

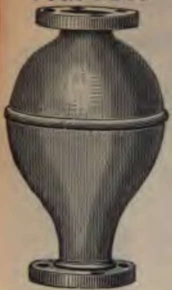


FIG. 489.

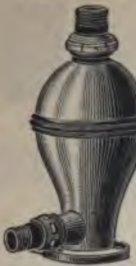


FIG. 487.

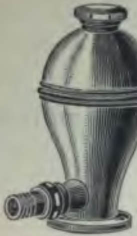


FIG. 488.

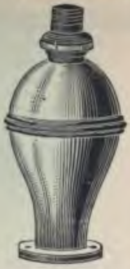


FIG. 350.

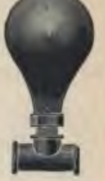
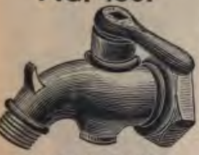


Fig. 531.			Fig. 489.	Fig. 487.	Fig. 488.	Fig. 350.	
	Iron.	Brass.					
1½ or 2 in.	$4.00	$10.50	$2.50	$2.00	$2.00	¾ inch pipe, . . .	$2.00
2½ "	5.25	12.75	These fit our Hand and House Force Pumps.			1 " " . . .	3.00
3 "	6.75	15.75				1¼ " " . . .	5.00

IRON COCKS WITH BRASS PLUGS.

FIG. 490.



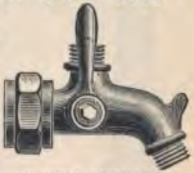
SINGLE DISCHARGE.

No. 1, ...	$2.00
No. 2, ...	3.00

No. 1 Cock with Coupling Nut, fits Air Chambers on our 2, 2½ and 3 inch Hand and House Force Pumps; also our **Figs. 401, 402, 413,** with threads cut for 1 inch hose couplings.

No. 2 Cock with Coupling Nut fits Air Chambers on our 3½ and 4 inch Hand and House Force Pumps; also **Figs. 237 and 593,** with threads cut for 1¼ inch hose coupling.

FIG. 491.



DOUBLE DISCHARGE.

No. 1, ...	$3.00
No. 2, ...	4.50

GOOSE NECKS OR SPOUTS.

FIG. 492.

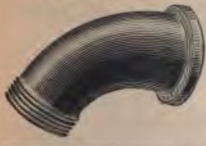


FIG. 407.

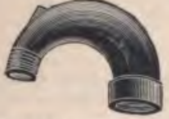
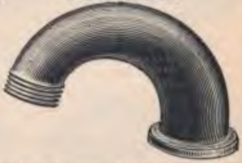


FIG. 493.



Fitted for Hose Coupling, . . .	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
Fig. 492, Flanged, ...	$0.40	$0.40	$0.50	$0.60	$0.75
Fig. 493, "	.50	.50	.65	.80	1.00
Fig. 407, Screwed, both ends, .	.50	.60	.90	1.25	1.50

GOULDS FLOAT OR TANK VALVES.

FIG. 656.

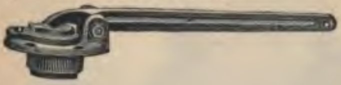
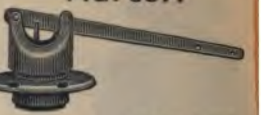
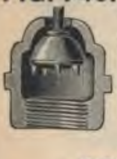


FIG. 657.



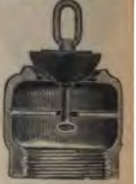
Sizes, Prices, Etc.

FIG. 740.



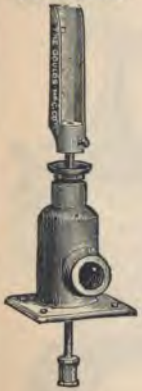
Size, inches, . .	¾	1	1¼	1½	2
Fig. 656, ...	$0.60	$0.60	$0.75	$0.90	$1.25
Fig. 657, ...	.80	.80	1.00	1.25	1.50
Fig. 740, ...	1.00	1.00	1.25		
Fig. 897, ...	1.00	1.25	1.50		

FIG. 897.



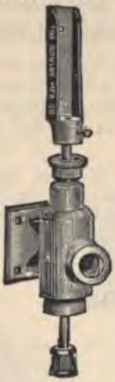
GOULDS PACKING BOXES AND WORKING HEAD.

FIG. 216.



THE GOULDS MFG. CO.

FIG 217.



THE GOULDS MFG. CO.

FIG. 707.

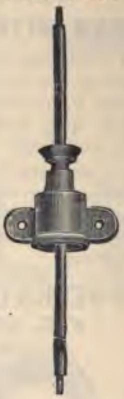
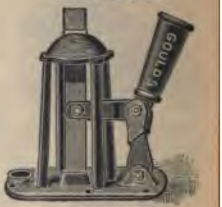


FIG. 535.



Sizes, Prices, Etc.

	Suction.	Dis.	Cipher.	Price.
Fig. 216, ...	1¼ in.	1¼ in.	Volumed	$6.00
Fig. 217, ...	1¼ "	1¼ "	Volumist	4.00

Fig. 707, 1 and 1¼ in. (Rive) $3.00. 1½ in. (Vividly) $3.25. 2 in. (Vividness) $3.50.

Fig. 535, Platform with Handle attached, ... $5.00

GOULDS FORKED ROD AND SCREW SOCKET COUPLINGS.

FIG. 9.

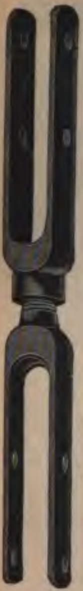


FIG. 232 A.

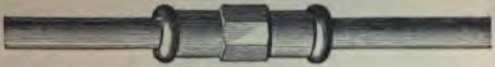


FIG. 232 B.

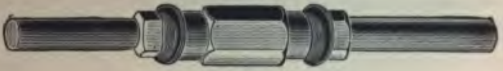


FIG. 232 C.

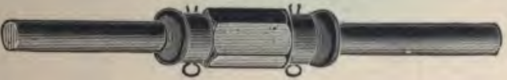
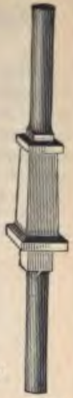


FIG. 515.



Sizes and Prices.

FIG. 515. Well Rod Joint and Brass Bush, ⅝ in. $1.20, ¾ in. $1.38 ⅞ in. $1.75, 1 in. $2.45.

FIG. 232 A. Malleable Rod Coupling with 7-16 inch stub ends, . .	40c.
FIG. 232 B. Mal. Rod Coupling with 7-16 inch stub ends, with lock nuts,	50c.
FIG. 232 C. Mal. Rod Coupling, with ½ inch stub ends, with keys, .	50c.
Malleable Rod Couplings only tapped for 7-16 or ⅜ inch rod, ...	25c.
Rods and Couplings ½ and 7-16 inch, per foot	12½c.
Brass Rod Couplings only tapped for ⅜ inch rod	25c.
Brass Rod Couplings only tapped for ⅝ inch rod, ...	45c.
Rods and Couplings, ⅝ inch per foot, ...	16c.
FIG. 9. Malleable Wood Rod Coupling for 1 inch Wood Rod, Plain, .	40c.
" " " " " " " Galvanized,	50c.

Rods of any size or length welded to order.

GOULDS GAS PIPE COUPLING WITH GUIDE.

FIG. 771.

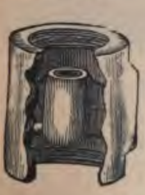


Fig. 771. Sizes and Prices.

1¼ inch pipe, .	$0.75	2½ inch pipe, .	$2.00
1¼ " " .	1.00	3 " " .	2.75
2 " " .	2.25		

DEEP WELL ROLLER GUIDE.

FIG. 516.

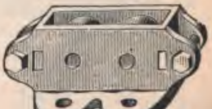


FIG. 516. Sizes and Prices.

Single Roller for ⅝ or ¾ inch Rod, .	$1.15
" " ⅞ " " .	1.50
" " 1 " " .	2.45
Double Roller for ⅝ or ¾ " " .	4.88

GOULDS BRASS JACKET DRIVE WELL POINTS.

FIG. 524. (Jamb.)

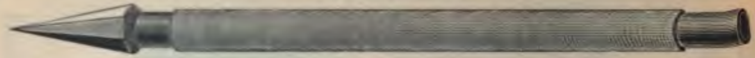


Fig. 524 is the *favorite* Brass Jacket Drive Well Point in the market. It is made from galvanized pipe, drilled with 7-16 inch holes, and covered with gauze varying in grade from the ordinary, No. 50, to the finest, No. 90, while over this still is placed the perforated brass jacket to protect it. Wherever the soil will admit of it we always recommend the use of coarser gauzes as giving the best effects.

No.	Size of Pipe.	Length of Jacket.	Length of Pipe.	Number of Holes.	No. 50 Gauze.	No. 60 Gauze.	No. 80 Gauze.	No. 90 Gauze.
1	1¼ in.	14 in.	20 in.	60	$2.50	$2.75	$3.50	$4.00
2	1¼ "	18 "	24 "	80	3.00	3.25	4.00	4.50
3	1¼ "	24 "	30 "	100	3.75	4.00	5.25	5.75
4	1¼ "	30 "	36 "	120	4.50	5.00	6.50	7.25
5	1¼ "	36 "	42 "	160	5.50	6.00	7.50	8.25
6	1¼ "	42 "	48 "	180	6.00	6.50	8.50	9.25
7	1¼ "	48 "	54 "	200	6.75	7.25	9.50	10.75
7½	1½ "	18 "	24 "	80	4.25	4.50	6.00	6.75
8	1½ "	24 "	30 "	100	4.75	5.00	6.50	7.25
9	1½ "	30 "	36 "	140	5.50	6.00	7.50	8.25
10	1½ "	36 "	42 "	180	6.00	6.50	8.50	9.50
11	1½ "	42 "	48 "	200	6.50	7.00	9.00	10.00
12	1½ "	48 "	54 "	250	7.25	8.00	10.50	12.25
13	2 "	24 "	30 "	200	7.00	8.00	10.00	11.25
14	2 "	30 "	36 "	250	8.00	9.00	11.00	12.25
15	2 "	36 "	42 "	300	9.00	10.00	13.00	15.50
16	2 "	42 "	48 "	350	10.00	12.00	15.00	18.50
17	2 "	48 "	54 "	400	11.00	13.50	18.00	20.50

Larger sizes up to 6 inches made to order.

GOULDS TUBULAR WELL FILTER POINTS.

FIG. 662. (Glad.)

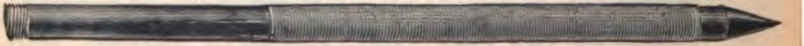


Fig. 662 is the same in all respects as **Fig. 524,** given above, except it has a flush head and is designed for tubular wells. These points will go inside of 2 in. pipe.

No.	Size of Pipe.	Length of Jacket.	Length of Pipe.	Number of Holes.	No. 50 Gauze.	No. 60 Gauze.	No. 80 Gauze.	No. 90 Gauze.
18	1¼ in.	24 in.	30 in.	100	$4.25	$5.00	$6.25	$7.25
19	1¼ "	24 "	51 "	100	4.50	5.25	6.75	7.75
20	1¼ "	30 "	45 "	120	5.00	5.75	7.50	8.50
21	1¼ "	30 "	57 "	120	5.25	6.00	7.75	8.75
22	1¼ "	36 "	51 "	160	5.75	6.50	8.25	9.25
23	1¼ "	36 "	63 "	160	6.00	7.00	9.00	9.75
24	1¼ "	42 "	57 "	200	6.50	7.50	9.50	10.25
25	1¼ "	42 "	69 "	200	6.75	7.75	9.75	10.75

GOULDS DRIVE WELL WASHER POINTS.

FIG. 661. (Rival).

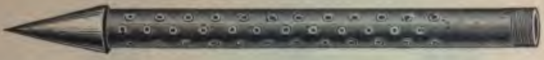


Fig. 661 is a Washer Point; that is, the brass gauze is held in its place by brass washers, countersunk into the gas pipe instead of being soldered on to the pipe, as is common. It is made of galvanized gas pipe and has been largely used.

FIG 661. Sizes and Prices.

1¼ in. diameter,	25 in. long,	60 holes,	$2.50
1¼ "	28 "	80 "	3.00
1¼ "	40 "	120 "	4.50

GOULDS DRIVE WELL FILTER POINTS.

FIG. 508. (Herb).

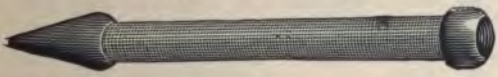


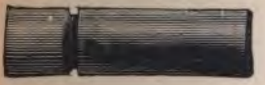
Fig. 508 is made of malleable iron, galvanized both inside and out, and covered with gauze protected with perforated tin. This Point has been on the market many years and always favorably received.

FIG. 508. Sizes and Prices.

1¼ in. diameter,	24 in. long,	with 48,	¾ in. holes,	$3.00
1½ "	29 "	" 52,	⅞ "	4.75
2 "	36 "	" 60,	1 "	8.00
2½ "	44 "	" 60,	1⅛ "	12.00
3 "	53 "	" 74,	1⅛ "	18.00

GOULDS DRIVE HEADS AND CAST-IRON MAUL.

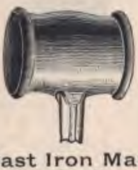
FIG. 10.



Steel Head.

1¼ in. pipe,	$3.00
1½ "	4.50

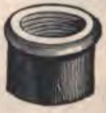
FIG. 8.



Cast Iron Maul.

12 lbs. with Handle,	$.55
14 " " "	.65
16 " " "	.75
18 " " "	.85

FIG. 510.



Malleable Head.

1¼ inch,	$ .72
1½ "	.90
2 "	1.55

GOULDS CHECK VALVES, STRAINERS, ETC.

FIG. 471.
Foot Valve.

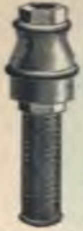


FIG. 472.
Check Valve.

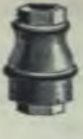


FIG. 760.
Foot Valve.

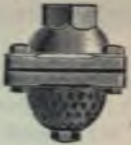


FIG. 667.
Check Valve.

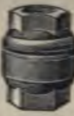


FIG. 742.
Check Valve.

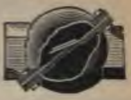


FIG. 826.
Strainer.

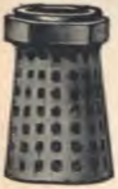
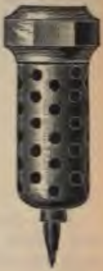


FIG. 222.
Strainer.



SIZE, INCHES, . .	¾	1	1¼	1½	2	2½	3
Fig. 471, Plain, .	$1.75	$2.00	$2.25	$2.50	$3.00	$3.50	$4.50
Galv., .	2.50	2.75	3.00	3.50	4.00	4.75	6.00
Fig. 472, Plain, .	1.75	2.00	2.25	2.50	3.00	3.50	4.50
Galv., .	2.50	2.75	3.00	3.50	4.00	4.75	6.00
Fig. 760, Plain, .	1.25	1.25	1.50	1.75	2.25	2.75	. .
Galv., .	1.75	1.75	2.00	2.50	3.00	3.50	. .
Fig. 826, Plain, .	.40	.50	.75	.90	1.15	. .	. .
Galv., .	.90	1.00	1.25	1.75	2.50	. .	. .
Fig. 222, Plain, .	. .	.70	.75	.90	1.15	1.25	. .
Galv., .	. .	1.25	1.50	1.75	2.00	2.25	. .
Fig. 667, Plain, .	1.50	1.75	2.00	2.50	3.00	4.25	. .
Galv., .	2.50	2.75	3.25	3.75	4.25	5.50	. .
Fig. 742, Plain, .	1.00	1.20	1.40	1.75	. .	. .	. .

FIG. 473.
Foot Valve.

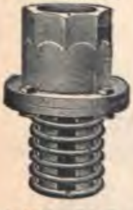


FIG. 474.
Check Valve.

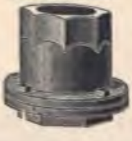


FIG. 475.
Foot Valve.

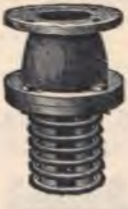
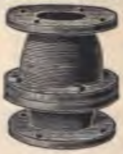
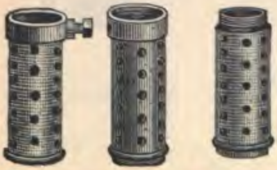


FIG. 476.
Check Valve.



Size, Inches.	2	2½	3	3½
Fig. 473,	. .	4.75	5.75	7.00
Fig. 474,	. .	. .	. .	7.00
Fig. 475,	4.00	4.75	5.75	7.00
Fig. 476,	4.25	5.00	6.00	7.25
Size, Inches.	**4**	**4½**	**5**	**6**
Fig. 473,	8.50	10.00	12.00	15.00
Fig. 474,	8.50	. .	. .	. .
Fig. 475,	8.50	10.00	12.00	15.00
Fig. 476,	8.75	10.50	12.75	16.00

FIGS. 658, 659, 660.
STRAINERS.



Size, inches, . .	1	1¼	1½	2	2½	3
Fig. 658, Plain,	$0.50	$0.60	$0.85	$1.10	$1.65	$2.25
Galvanized,	.60	.85	1.10	1.65	2.25	2.75
Gal. & Cov'd,	.85	1.10	1.65	2.25	2.75	3.25
Fig. 659, Plain,	.40	.50	.75	1.00	1.50	2.00
Galvanized,	.50	.75	1.00	1.50	2.00	2.50
Gal. & Cov'd,	.75	1.00	1.50	2.00	2.50	3.00
Fig. 660, Plain,	.40	.50	.75	1.00	1.50	2.00
Galvanized,	.50	.75	1.00	1.50	2.00	2.50
Gal. & Cov'd,	.75	1.00	1.50	2.00	2.50	3.00

GOULDS CELEBRATED PUMP CYLINDERS.

BORED, REAMED AND POLISHED.

Every one knows that the Cylinder is the Pump; by means of that, water is raised. If the Cylinder is defective the Standard is of no use, no matter how attractive it may be in its appearance. It will be seen from the following pages that we manufacture a large line of Working Cylinders, and we are prepared to say that they are all well made in every respect and can be relied on under all circumstances.

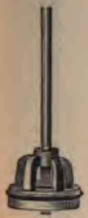
Piston Rods are *always* made with stub for welding, unless ordered otherwise.

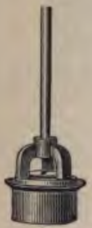
Cylinders are always shipped both ends screwed for sizes named in tables, unless ordered otherwise. If wanted with Strainer at bottom, always specify.

Our technical names of different parts comprising a Working Cylinder are:

Body or Shell or Cylinder.
Top Attachment.
Bottom Attachment.
Plunger (meaning Plunger complete).
Bail or Cage.
Follower or Bottom of Plunger.
Lower Valve.

We can fit any of our Cylinders with metallic valves throughout, for pumping hot or corrosive liquids, to order.


A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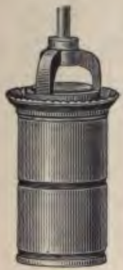
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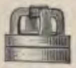
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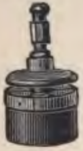
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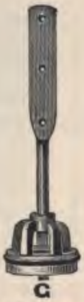
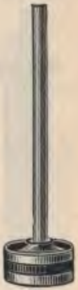

G


H

The cuts show the various styles of Plungers we use in our lower Cylinders described on pages 202 to 205.

A Plunger is an ordinary one, with leather packing and iron valve, used in Cylinders **Figs. 609, 610 and 559.**

B Plunger has a bail and valve and a follower 1½ inches long, turned to fit the walls of Cylinder close enough to produce a vacuum and at the same time has a leather packing besides. It is used in Cylinders **Figs. 611 and 612.**

C Plunger has a bail and valve and a follower about five inches long, with grooves, as shown in cut. The Plunger fits the Cylinder as closely as any steam engine piston, and is the best of the kind ever made. This style is used in **Figs. 613, 614, 615 and 548.**

E Plunger is of entirely new construction, with the rod running down through it and with a follower two inches long and disc valve closing over a faced valve seat. It goes in Cylinder **Fig. 617.**

F Plunger is all brass with stem valve and follower *turned* to fit walls of Cylinder. We put cup leather packings on this plunger. Used in Cylinder **Fig. 616.**

G Plunger is our ordinary one, the same as **A** style, only that the rod is flat for attaching o wood piston rod. It goes in Cylinder **Fig. 620.**

H Piston is a *solid one*, and packed at top and bottom with cup leathers. This Piston is *only* used in Double-Acting Cylinders, like our **Fig. 621.**

GOULDS CELEBRATED PUMP CYLINDERS.

FIG. 609.

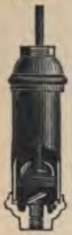
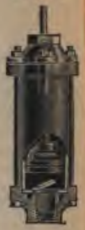


FIG. 610.



GAS SET PUMP CYLINDERS. "A" Plunger.

No.	Size, Inches.	Pipe, Inches.	Iron.	Brass Body Iron Plunger and Att's.	Brass Body and Plunger, Iron Att's.	All Brass.
1.	2¼ x 9	1	$4.00	$7.50	$8.25	$9.00
2	2½ x 9	1¼	4.35	8.00	8.75	9.50
3	2¾ x 9	1¼	4.70	8.75	9.75	10.50
4	3 x 9	1¼	5.00	9.50	10.50	11.50
5	3¼ x 9	1¼	5.30	10.50	11.50	12.50
6	3½ x 9½	1½	5.60	11.50	12.50	14.00
7	3¾ x 10	1½	5.90	13.00	14.00	15.50
8	4 x 10	1½	6.50	14.00	15.00	17.00

SHALLOW WELL PUMP CYLINDERS. "B" Plunger.

FIG. 611.

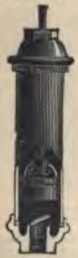
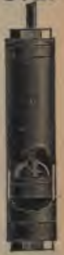


FIG. 612.



No.	Size, Inches.	Pipe, Inches.	Iron.	Brass Body, Iron Plunger and Att's.	Brass Body, and Plunger, Iron Att's.	All Brass.
1	2¼ x 12	1	$5.75	$10.50	$11.50	$13.00
2	2½ x 12	1¼	6.00	11.50	12.50	14.00
3	2¾ x 12	1¼	6.50	11.75	13.25	15.00
4	3 x 12	1¼	7.00	12.75	14.25	16.25
5	3¼ x 12	1¼	7.50	14.00	15.00	17.50
6	3½ x 12	1½	8.00	15.50	17.50	20.00
7	3¾ x 12	1½	8.50	18.00	20.50	23.50
8	4 x 12	1½	9.25	21.50	24.00	27.50
1	2¼ x 14	1	6.25	11.25	12.50	14.00
2	2½ x 14	1¼	6.50	11.75	13.00	14.50
3	2¾ x 14	1¼	7.00	12.50	14.00	15.75
4	3 x 14	1¼	7.50	13.50	15.00	16.75
5	3¼ x 14	1¼	8.00	15.00	16.75	18.25
6	3½ x 14	1½	8.50	16.50	19.00	21.50
7	3¾ x 14	1½	9.00	20.25	22.75	25.00
8	4 x 14	1½	10.00	23.75	27.00	29.50

DEEP WELL PUMP CYLINDERS. "C" Plunger.

FIG. 613.

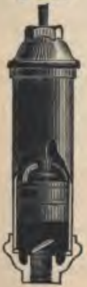
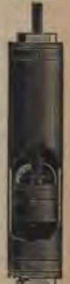


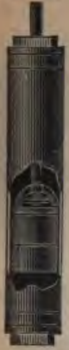
FIG. 614.



No.	Sizes, Inches.	Pipe, Inches.	Iron.	Brass Body, Iron Plunger and Att's.	Brass Body and Plunger, Iron Att's.	All Brass.
000	1½ x 16	1				$12.50
00	1¾ x 16	1¼	We do not make these sizes except in Fig. 614, all brass.			12.50
0	2 x 16	1¼				13.50
1	2¼ x 16	1¼	$6.50	$12.00	$13.50	15.00
2	2½ x 16	1¼	7.00	12.50	14.00	15.00
3	2¾ x 16	1¼	7.50	13.00	14.50	16.25
4	3 x 16	1¼	8.00	14.00	15.50	17.50
5	3¼ x 16	1½	8.50	16.00	18.00	20.00
6	3½ x 16	1½	9.00	18.50	21.00	23.40
7	3¾ x 16	1½	9.50	22.50	25.00	27.50
8	4 x 16	1½	10.50	26.00	29.00	32.50
10	4½ x 16	2	14.00	30.00	35.00	40.00
12	5 x 16	2½	17.00	33.00	39.00	45.00
12	5 x 18	2½	20.00	37.00	43.00	50.00
16	6 x 16	3	23.00	42.00	50.00	60.00

Add from ½ to 9-16 inch to get *outside* diameter of Cylinders Figs. 612 and 614.

FIG. 615.



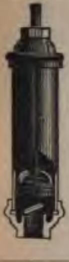
GOULDS ARTESIAN DEEP WELL PUMP CYLINDER.

"C" PLUNGER.

No.	Size, Inches.	Pipe, Inches.	Iron.	Brass Body and Plunger, Iron Attachments.	All Brass.
00	1¾ x 20	1 or 1¼	$7.50	$13.75	$15.00
0	2 x 20	1¼	7.50	14.50	16.00
1	2¼ x 20	1¼	8.00	15.50	17.00
2	2½ x 20	1¼	8.50	16.50	18.00
3	2¾ x 20	1¼	9.00	18.25	20.00
4	3 x 20	1¼	9.50	20.50	22.50
5	3¼ x 20	1¼ or 1½	10.00	23.00	25.00
8	4 x 20	1½ or 2	12.50	36.00	40.00

Add from 1-2 to 9-16 inch to get *outside* diameter.

FIG. 611.



GOULDS IRON PUMP CYLINDERS,

LINED WITH SEAMLESS BRASS TUBES.

"B" PLUNGER, FOR SHALLOW WELLS.

No.	Size, Inches.	Pipe, In.	Brass Cage and Valve.	All Brass Plung.
1	2¼ x 12	1	$ 8.00	$ 9.00
2	2½ x 12	1¼	8.50	9.50
3	2¾ x 12	1¼	9.00	10 00
4	3 x 12	1¼	9.50	10.50
5	3¼ x 12	1¼	10.00	11.25
6	3½ x 12	1½	10.50	12.00
7	3¾ x 12	1½	11.50	13.50
8	4 x 12	1½	12.50	15.00

"C" PLUNGER, FOR DEEP WELLS.

No.	Size, Inches.	Pipe, In.	Brass Cage and Valve.	All Brass Plung'r
1	2¼ x 16	1¼	$ 9.50	$10.75
2	2½ x 16	1¼	10.00	11.50
3	2¾ x 16	1¼	10.50	12.00
4	3 x 16	1¼	11.00	12.75
5	3¼ x 16	1½	11.50	13.75
6	3½ x 16	1½	12.00	14.50
7	3¾ x 16	1½	13.50	16.50
8	4 x 16	1½	15.75	19.00

FIG. 613.

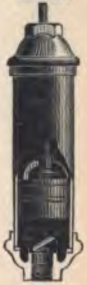


FIG. 617.

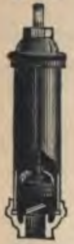
GOULDS WIND MILL AND DEEP WELL PUMP CYLINDER.

"E" PLUNGER.

No.	Size, Inches.	Pipe, Inches.	Brass Body, Iron Attachments and Plunger.	Brass Body and Plunger, Iron Attachments.	All Brass.
4	3 x 12	1¼	$12.00	$14.50	$16.50
6	3½ x 12	1½	13.75	17.50	20.00
8	4 x 12	1½	15.00	24.00	29.00
12	5 x 14	2½	25.25	35.00	40.00
16	6 x 14	2½	30.00	44.50	52.00
20	8 x 14	3	50.00	65.00	72.00

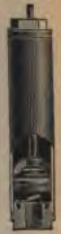
GOULDS SEAMLESS BRASS TUBE WIND MILL PUMP CYLINDERS.

FIG. 616.



OUTSIDE ATTACHMENTS.

FIG. 616.



INSIDE ATTACHMENTS.

"F" PLUNGER. 10½ inch Long.

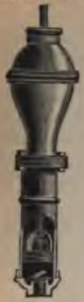
No.	Size, inches.	Pipe, Inches.	Brass Body, and Plunger Iron Attachments.	All Brass.
1	2¼ x 10½	1	$7.75	$8.50
2	2½ x 10½	1¼	8.00	8.75
3	2¾ x 10½	1¼	8.50	9.25
4	3 x 10½	1¼	9.00	10.00
5	3¼ x 10½	1¼	9.75	10.75
6	3½ x 10½	1½	10.50	12.00
7	3¾ x 10½	1½	11.75	13.25
8	4 x 10½	2	14.00	16.00

"F" PLUNGER. 12 inch Long.

No.	Size, Inches.	Pipe Inches.	Brass Body and Plunger, Iron Attachments.	All Brass.
1	2¼ x 12	1	$8.25	$9.25
2	2½ x 12	1¼	8.50	9.50
3	2¾ x 12	1¼	9.00	10.00
4	3 x 12	1¼	9.50	11.00
5	3¼ x 12	1¼	10.25	11.75
6	3½ x 12	1½	11.25	13.50
7	3¾ x 12	1½	12.75	15.75
8	4 x 12	2	15.00	18.50
	"B" PLUNGER. 14 inch Long.			
1	2¼ x 14	1	$10.25	$11.75
2	2½ x 14	1¼	10.50	12.00
3	2¾ x 14	1¼	11.25	13.00
4	3 x 14	1¼	11.75	13.50
5	3¼ x 14	1¼	12.75	14.50
6	3½ x 14	1½	14.75	16.25
7	3¾ x 14	1½	16.25	18.50
8	4 x 14	2	19.00	21.50
	"C" PLUNGER. 16 inch Long.			
000	1½ x 16	1	$10.50	$12.00
00	1¾ x 16	1¼	10.50	12.00
0	2 x 16	1¼	10.50	12.00
1	2¼ x 16	1¼	11.25	12.75
2	2½ x 16	1¼	11.75	13.25
3	2¾ x 16	1¼	12.25	13.75
4	3 x 16	1¼	12.75	14.75
5	3¼ x 16	1½	14.00	16.00
6	3½ x 16	1½	16.00	18.50
7	3¾ x 16	1½	17.50	20.00
8	4 x 16	1½	20.50	24.00
10	4½ x 16	2	26.50	30.50
12	5 x 16	2½	31.00	36.00
12	5 x 18	2½	36.00	41.00
16	6 x 16	3	42.00	49.00

Fitted with *Inside* Attachments at same list prices when so ordered.

FIG. 559 1-2.

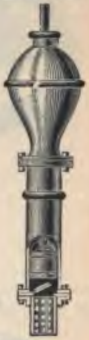


DEEP WELL PUMP CYLINDER WITH AIR CHAMBER.

"A" PLUNGER.

No.	Size.	Fitted for.	Iron.
4	3 x 12 in.	1¼ in.	$ 9.00
8	4 x 12 "	1½ in.	11.50

FIG. 548.

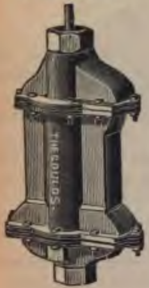


GOULDS DEEP WELL PUMP CYLINDER WITH AIR CHAMBER.

"C" PLUNGER.

No.	Size.	Pipe.	Iron.
3	2¾ x 16	1¼ in.	$11.00
4	3 x 16	1¼ "	11.50
5	3¼ x 16	1½ "	12.00
6	3½ x 16	1½ "	12.50
7	3¾ x 16	1½ "	13.00
8	4 x 16	1½ "	14.00

FIG. 621.



GOULDS DOUBLE-ACTING PUMP CYLINDER.

"H" PISTON.

No.	Size.	Stroke.	Fitted for	Iron.
1	2¼ x 10½	6 in.	1¼ in.	$10.00
4	3 x 10½	6 "	1½ "	12.00
8	4 x 10½	6 "	2 "	14.00
8	4 x 14	10 "	2 "	20.00

FIG. 620.

GOULDS WOOD PUMP CYLINDER.

"G" PLUNGER.

No.	Size.	Fitted for	Iron.
4	3 x 11½ in.	1¼ in.	$3.00
5	3¼ x 11½ "	1¼ "	4.00
7	3¾ x 11½ "	1½ "	4.50

GOULDS NEW STEEL AMALGAM BELLS.

COMPLETE WITH HANGINGS, AS SHOWN IN CUT.

FIG. 758.

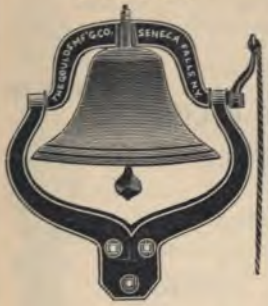

THE GOULDS MF'G CO.
SENECA FALLS N.Y.

Fig. 758 represents our new pattern Steel Amalgam Bells, which we have just perfected and are prepared to furnish at greatly reduced prices.

We believe they are superior to many more expensive makes, and that they will fully sustain the high standard of the "Goulds" Bell, and give the best satisfaction.

They are well adapted to farms, school-houses, factories, or any place where a cheap but serviceable Bell can be used.

FIG. 758. Sizes, Prices, Etc.

No.	Dia.	Weight Complete.	Cipher.	Price.
A 1	15 in.	40 lbs.	Vaporing	$ 4.00
A 2	17 "	60 "	Vaporize	5.00
A 3	19 "	75 "	Vapory	7.50
A 4	21 "	100 "	Varanus	10.00

GOULDS STEEL AMALGAM BELLS.

COMPLETE WITH HANGINGS, AS SHOWN IN THE CUT.

FIG. 352.

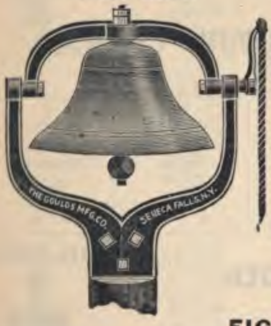

THE GOULDS MFG.CO.
SENECA FALLS N.Y.

Fig. 352 represents our Steel Amalgam Bells, so celebrated, and which are especially adapted to farms, plantations, school-houses, factories, etc.

Every farm or plantation should have a Bell, for the following reasons:

1st. Because the workmen are often prevented by winds or distance from hearing the dinner horn or hand bell.

2d. It sounds cheerful and neighborly to hear the bells clang out over the country.

3d. By a series of signals, previously arranged, either the proprietor or all the men can be brought to the house in a few moments.

4th. In case of fire, or any calamity, the bell can call together the whole neighborhood in a short time.

FIG. 352. Sizes, Prices, Etc.

No.	Dia.	Weight Bell only.	Weight Complete.	Cipher.	Price.
1	15½ in.	38 lbs.	62 lbs.	Ferry	$ 6.00
2	16½ "	51 "	77 "	Fetch	8.00
2½	17½ "	57 "	86 "	Fend	9.00
3	18½ "	65 "	102 "	Fiat	10.00
4	21 "	80 "	132 "	Fibre	12.00
5	24 "	134 "	180 "	Field	20.00

GOULDS SPANISH-AMERICAN STEEL AMALGAM BELLS.

These Bells are made so as to be fastened from the top and to remain stationary. They are to be rung by a cord fastened in the eye at the end of the clapper, after the manner of chime bells, and they are *Real, Ringing Merry Bells.*

No farm, plantation or factory should be without one.

FIG. 354.

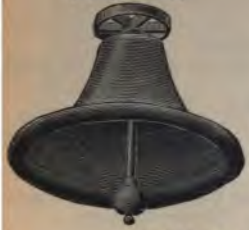


FIG. 354. Sizes, Prices, Etc.

No.	Dia.	Weight Bell only.	Cipher.	Price.
1	15½ in.	38 lbs.	Fagot	$ 4.80
2	16½ "	51 "	Fail	6.00
2½	17½ "	57 "	Fain	7.00
3	18½ "	65 "	Faint	7.75
4	21 "	80 "	Fell	10.00
5	24 "	134 "	Felt	14.00
6	28 "	247 "	Fen	30.00
7	30 "	325 "	Fence	36.00
8	33 "	414 "	Fern	55.00

GOULDS LARGE STEEL AMALGAM BELLS.

WITH HANGINGS AND FRAME.

FIG. 353.

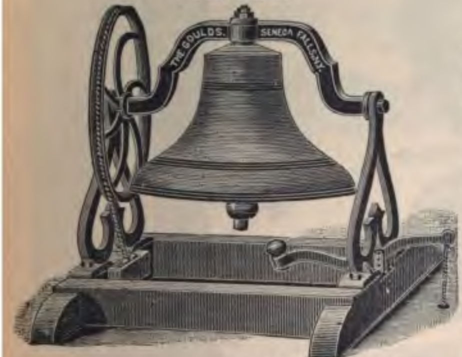

THE GOULDS. SENECA FALLS, N.Y.

Fig. 353 represents our Steel Amalgam Bells as we mount them in the larger sizes for churches, schoolhouses, factories, engine houses, etc. We have sent thousands of these Bells to various portions of the United States, as their cheapness places them in the reach of any church, and they have always given splendid satisfaction.

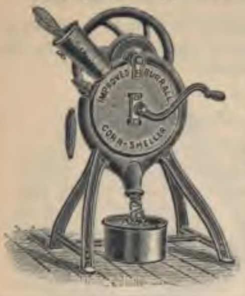
We send all our Bells to market richly gilded.

We put tolling attachment as shown in cut, on Nos. 6 and 7 at $4.00 extra, and on No. 8 at $5.00 extra list.

FIG. 353. Sizes, Prices, Etc.

No.	Dia.	Weight of Bell only.	Weight Complete.	Size of Frame.	Cipher.	Price.
3	18½ in.	65 lbs.	172 lbs.	27 x 41½ in.	Fabric	$16.00
4	21 "	80 "	186 "	30 x 41½ "	Fabrile	20.00
5	24 "	134 "	240 "	32½ x 41½ "	Fable	25.00
6	28 "	247 "	396½ "	36 x 48 "	Face	40.00
7	30 "	325 "	487 "	36 x 48 "	Fact	50.00
8	33 "	414 "	689½ "	38 x 48 "	Fade	75.00

FIG. 430.



GOULDS IMPROVED BURRALL'S IRON CORN SHELLER.

RIGHT-HANDED.

We are the only manufacturers of the genuine Burrall's Corn Sheller, which has for years been conceded the best in the market, and warn the trade against spurious machines. *It is all iron and very durable; it shells and separates perfectly clean; it will shell either large or small corn; and its repairs are cheap and easily replaced.*

Get only the Burrall Sheller with our name on and avoid all trouble.

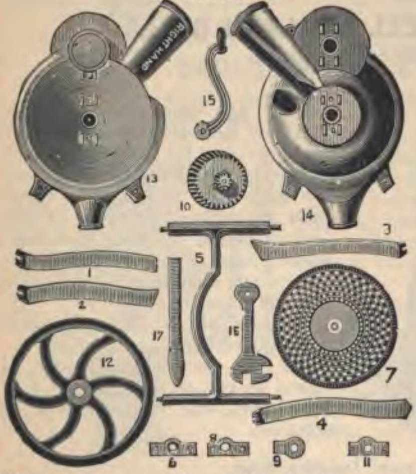
Price.

Corn Sheller complete, ... $8.00

We pack one Sheller in a case or from six to eight in a hogshead.

Corn Sheller Pieces.

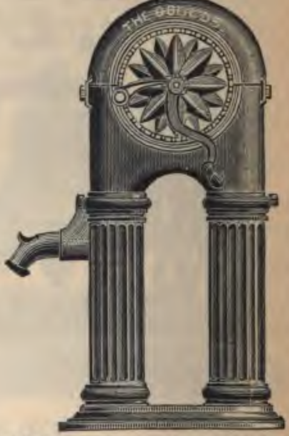
FIG. 431.



No. 1, Leg, . . .	$0.35
No. 2, Leg, . . .	.35
No. 3, Leg, . . .	.35
No. 4, Leg, . . .	.35
No. 5, Cross Bar, .	.60
No. 6, Shell Wheel Box, flat side, . .	.15
No. 7, Shell Wheel,	1.75
No. 8, Shell Wheel Box, round side, .	.15
No. 9, Feed Wheel Box, flat side, . .	$0.15
No. 10, Feed Wheel,	.80
No. 11, Feed Wheel Box, round side, .	.15
No. 12, Balance Wheel, ...	1.75
No. 13, Flat Side, .	2.00
No. 14, Round Side,	2.00
No. 15, Handle, . .	.40
No. 16, Wrench, . .	.15
No. 17, Spring, . .	.65

Iron Column Curb for Chain Pumps.

FIG. 347.



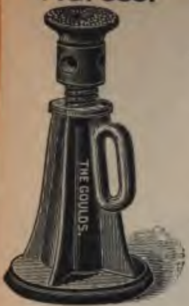
The cut represents our Iron Curb for the chain Pump These curbs are much more durable and substantial than any wood frame, and will be found the best curb ever designed for this purpose.

Price.

Iron Column Curb $9.00

Galvanized Pump Chain with buckets at lowest rates.

FIG. 383.



GOULDS WROUGHT IRON JACK SCREWS.

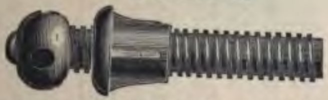
WITH IRON STANDS. SWIVEL CAPS.

Diameter of Screw.	Length of Screw.	Thread Cut.	Will Raise.	Cipher.	Price.
1½ in.	11 in.	8 in.	6 in.	Fitch	$ 6.00
1¾ "	12 "	9 "	7 "	Fitz	7.00
2 "	15½ "	12 "	9 "	Five	10.00
2½ "	17½ "	14 "	10 "	Fix	14.00
3 "	20 "	16 "	12 "	Flag	16.00

GOULDS CAST IRON JACK SCREWS.

WITH NUT TO LET INTO WOODEN BLOCK.

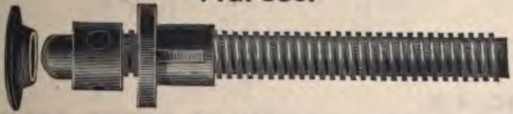
FIG. 385.



3 inches diameter, 24 inches long, cast threads, each, ... (Finch) $6.00

GOULDS WROUGHT IRON CHEESE AND CIDER PRESS SCREWS.

FIG. 386.



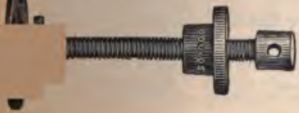
2¼ inches diameter, 36 inches long,	. . . .	(Peel)	$13.25
2¾ " " 36 " "	. . . .	(Peep)	17.00
2¾ " " 42 " "	. . . .	(Peer)	18.75
3 " " 36 " "	. . . .	(Pelt)	23.75
3 " " 48 " "	. . . .	(Pent)	27.50
4 " " 48 " "	. . . .	(Peon)	37.50
4 " " 60 " "	. . . .	(Pert)	40.00

Screws of any length or size made to order.

CAST IRON CIDER PRESS SCREWS.

4 inches diameter, 4 feet long, ... (Fiend) $15.00

FIG. 379.

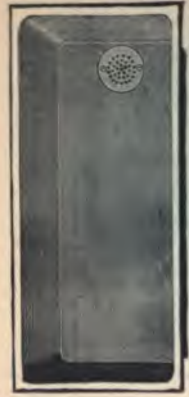


WINE OR LARD PRESS SCREWS.

1¼ inches diam., 18 inches long, . .	(Firm) . .	$5.75
1½ " " 18 " " . .	(First) . .	6.00
1¾ " " 24 " " . .	(Fish) . .	6.75

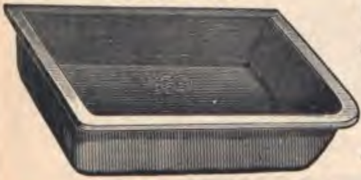
GOULDS CELEBRATED PLUMBERS' SQUARE SINKS.

FIG. 428.



Size.	Depth.	Cipher.	Painted.
12 x 18 in.	6 in.	Voter	$1.70
12 x 20 "	6 "	Voting	1.85
13 x 19 "	5 "	Pess	1.75
14 x 20 "	6 "	Pest	2.20
14 x 22 "	6 "	Votive	2.25
14 x 24 "	6 "	Prize	2.30
15 x 23 "	6 "	Phiz	2.40
16 x 24 "	6 "	Pica	2.70
15 x 25 "	6 "	Pick	2.75
15 x 27 "	6 "	Pico	2.90
16 x 28 "	6 "	Pied	3.20
16 x 30 "	6 "	Pier	3.50
17 x 25 "	6 "	Vouch	2.80
17 x 28 "	6 "	Voucher	3.75
18 x 24 "	6 "	Prim	2.80
18 x 30 "	6 "	Pike	3.75
20 x 30 "	6 "	Pile	4.00
18 x 32 "	6 "	Pill	4.25
18 x 36 "	6 "	Pine	4.75
19 x 38 "	6 "	Pink	5.60
20 x 36 "	6 "	Pint	5.25
20 x 40 "	6 "	Pipe	6.00
18 x 42 "	6 "	Pith	6.25
20 x 42 "	6 "	Pity	6.50
22 x 42 "	6 "	Plan	6.75
24 x 48 "	6 "	Plat	8.00
24 x 50 "	6 "	Play	8.50

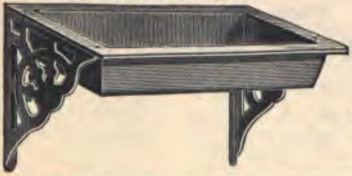
FIG. 415.



GOULDS ROUND CORNER SINKS.

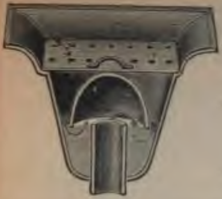
Size.	Depth.	Cipher.	Painted.
16 x 24 in.	6 in.	Surf	$2.70
18 x 30 "	6 "	Surge	3.50

FIG. 814.



GOULDS ADJUSTABLE SINK BRACKETS.

No.	For Sinks.	Cipher.	Price, Each.
1	12 to 18 in. wide	Stun	$ .80
2	18 to 24 "	Suet	1.35

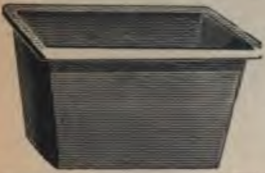


GOULDS IMPROVED SEWER TRAPS.

FIG. 403.

No.	Size.	Depth.	Outlet.	Cipher.	Price.
1	16 x 16 in.	8 in.	2 in.	Pump	$3.50
2	16 x 16 "	8 "	2 "	Punt	5.00

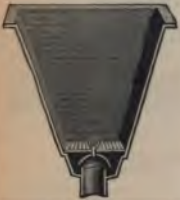
No. 2 is extra heavy and strong.



GOULDS SLOP SINKS.

FIG. 419.

No.	Size.	Depth.	Cipher.	Painted.
1	16 x 16 in.	10 in.	Pole	$4.00
2	20 x 14 "	12 "	Poll	5.00
3	24 x 20 "	12 "	Pore	6.00

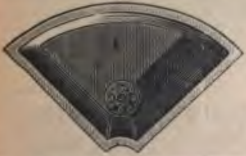


GOULDS SEWER TRAP AND SLOP SINK.

WITH TRAP AND STRAINER.

FIG. 416.

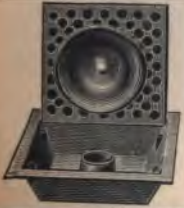
No.	Size.	Depth.	Outlet.	Cipher.	Price.
1	12 x 12 in.	6 in.	2 in.	Post	$2.25
2	15 x 15 "	11½ "	2 "	Pour	3.35
3	18 x 18 "	12 "	3 "	Pout	4.25
4	20 x 20 "	12 "	3 "	Pray	5.25



GOULDS CORNER SINKS.

FIG. 429.

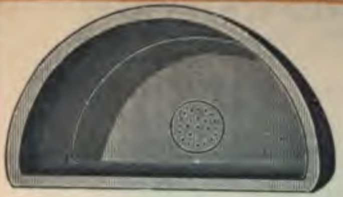
No.	Sides.	Front.	Depth.	Cipher.	Painted.
1	20 in.	28 in.	6 in.	Poet	$2.50
2	22 "	31 "	6½ "	Poke	3.15



GOULDS CELLAR TRAPS.

FIG. 417.

No.	Size.	Depth.	Outlet.	Cipher.	Price.
1	9 x 9 in.	2¼ in.	2 in.	Prod	$1.25
2	12 x 12 "	2¼ "	2 "	Prop	1.75



GOULDS HALF CIRCLE SINKS.

FIG. 418.

No.	Back.	Width.	Depth.	Cipher.	Painted.
1	24 in.	14 in.	6 in.	Plug	$2.50
2	27 "	14 "	6 "	Plum	3.75

GOULDS IMPROVED HYDRANT CESS POOLS.

FIG. 420.

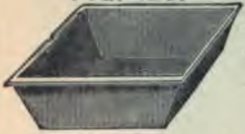
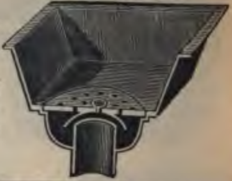


FIG. 421.



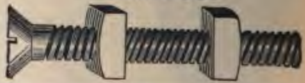
Sizes and Prices.

No.	Size.	D'pth	Outlet	Fig. 420.	Fig. 421.
1	12x12 in	6 in.	5 in.	$1.80	$2.25
2	14x14 "	6 "	5 "	2.00	2.65
3	16x16 "	6 "	5 "	2.50	3.25

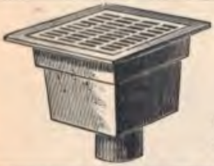
Can furnish above with 5 inch outlet, when so ordered.

GOULDS SINK BOLTS.

FIG. 368.



Per Doz,	$0.75
Per Package (100)	3.75



GOULDS LARGE CESS POOL.

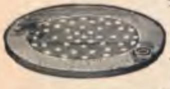
WITH BELL TRAP.

FIG. 369.

Size.	Depth.	Outlet.	Cipher.	Price.
16 x 16 in.	10 in.	4 in.	Bond.	$4.50

GOULDS SINK STRAINERS.

FIG. 435.



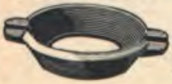
Size and Price.

Dia.	Cipher.	Price, per doz.
4¾ in.	Pulp	$2.00

OPEN END SINK COUPLING.

FOR LEAD PIPE.

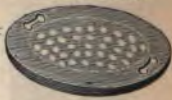
FIG. 434.



Per doz. (Prow) . $2.00

GOULDS ADJUSTABLE SINK STRAINERS.

FIG. 365.



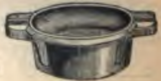
Size and Price.

Dia.	Cipher.	Price per doz.
4¾ in.	Diet	$2.00

OPEN END SINK COUPLING.

FOR IRON PIPE.

FIG. 366.



Per doz. (Dig) . . $4.00

RUBBER CONDUCTING, HYDRANT AND ENGINE HOSE.

Internal diameter, Inches,	2 Ply Conducting price per ft.	3 Ply Hydrant, price per ft.	4 Ply Engine, price per ft.
½	$ .20	$ .25	$ .30
¾	.25	.30	.37
1	.33	.40	.50
1¼	.42	.50	.62
1½	.50	.60	.75
1¾	.58	.70	.87
2	.66	.80	1.00
2¼	.75	.90	1.12
2½	.83	1.00	1.25
3	.99	1.20	1.50

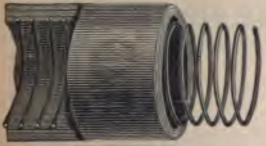
5 Ply 25 per cent. advance on 4 Ply.

COTTON HOSE — SEAMLESS WOVEN AND RUBBER LINED.

Internal diameter, inches	1	1½	2	2¼	2½
Price per foot . . .	$ .40	$ .50	$ .60	$ .65	$ .70

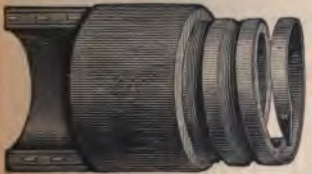
SEAMLESS LINEN HOSE.

Internal diam., in.	1	1¼	1½	1¾	2	2¼	2½	3
Unlined, per ft.	.20	.22	.25	.28	.30	.33	.35	.50
Rubber lined, "	. .	.50	.55	. .	.65	.70	.75	. .



RUBBER SUCTION HOSE.

	ON SPIRAL BRASS WIRE.					FLAT GALVANIZED SPIRAL IRON.			
Internal diameter inches.	¾	1	1¼	1½	2	2½	3	3½	4
Price per ft.	.77	1.00	1.25	1.65	2.50	3.10	4.00	4.90	5.80



PATENT "SMOOTH BORE" RUBBER SUCTION HOSE.

Internal diameter, in.,	2	2½	3	3½	4
Price per foot . . .	$2.60	$3.50	$4.50	$5.50	$6.50

HARD RUBBER SUCTION HOSE.

nternal diameter, inches . . .	¾	1	1¼	1½	1¾	2	2½
rice per foot, ...	$ .65	$ .75	$ .93	$1.13	$1.31	$1.50	$1.88

GOULDS BRASS HOSE COUPLINGS.

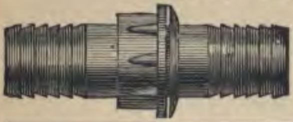
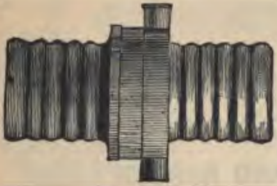


FIG. 504.

Size, inches, . . .	½	¾	1
Price, per doz., . .	$2.40	$2.40	$4.40



BRASS HOSE COUPLINGS.

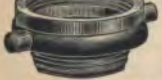
WITH LUGS.

FIG. 497.

Size, inches, . .	1¼	1½	2	2½
Price, per doz., .	$10.00	$14.00	$24.00	$48.00

HOSE REDUCERS.

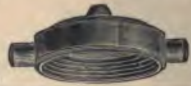
FIG. 799.



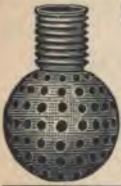
1 to ¾	1½ to ¾	1½ to 1	2 to ¾	2 to 1	2 to 1¼	2 to 1½
.60	.85	.95	1.25	1.50	1.60	2.10

HOSE CAPS.

FIG. 784.



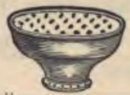
1	1¼	1½	2	2½
1.00	1.50	2.00	2.50	3.00



GLOBE SUCTION BASKET, TO TIE ON.

FIG. 622.

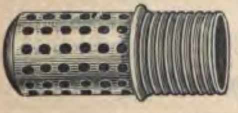
Size, in.	1	1¼	1½	2
Galv'd	.50	.60	.75	1.25
Brass, .	2.00	2.25	2.75	3.50



HOSE PIPE SPRINKLERS.

FIG. 503.

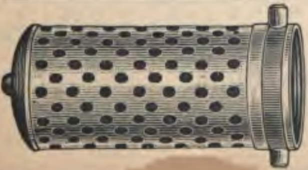
Diam. of Face, in.,	1⅝	1⅝	2⅜	2⅜	2¾
Size Hose Pipe, in.,	¾	1	1¼	1½	2
Price, per doz., . .	$3.50	$3.50	$6.00	$6.00	$9.00



BRASS SUCTION BASKET, TO TIE ON.

FIG. 750.

Size, inches, ...	¾	1	1¼	1½	2
Price, each, ...	$2.50	$3.00	$3.25	$4.00	$5.00

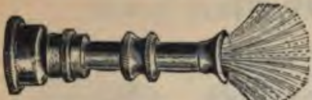


BRASS SUCTION BASKET.

TO SCREW ON.

FIG. 751.

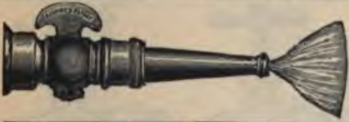
Size, inches, .	1½	2	2¼	2½	3	3½
Price, each, .	$4.00	$5.00	$6.00	$7.00	10.00	15.0



"GEM" GRADUATING SPRAY PIPE.

FIG. 357. Prices.

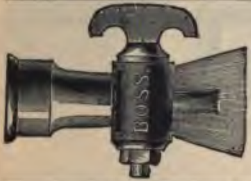
Size, inches	¾	1
Per doz	$9.00	$12.00



"MAGIC" HOSE PIPE.

FIG. 356. Prices.

Size, inches	¾	1
Per doz	$9.00	$12.00



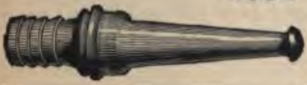
"BOSS" SPRAY PIPE.

FIG. 359. Prices.

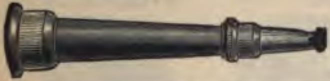
Size, inches	¾	1
Per doz	$16.00	$18.00

HOSE NOZZLE, TO TIE ON.

FIG. 502. Prices.



Size, inches	¾x3½	1x4	1¼x4½
Per doz	$3.50	$4.50	$6.50



HOSE PIPE, SCREW TIP.

FIG. 499. Prices.

Size, inches	¾x6	1x7¼	1x12
Per doz	$8.00	$9.00	$12.00

LARGE HOSE PIPE, SCREW TIP.

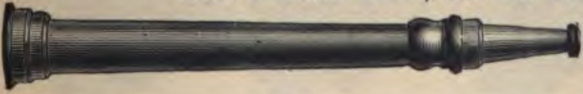


FIG. 496.

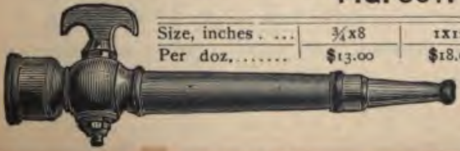
Prices.

Size, inches	1¼x12½	1½x18	2x23	2½
Per doz	$21.00	$25.00	$40.00	$60.00

HOSE PIPE WITH COCK ON END, SCREW TIP.

FIG. 501. Prices.

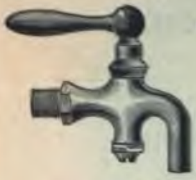
Size, inches	¾x8	1x12	1¼x22	1½x24	2x30
Per doz.	$13.00	$18.00	$40.00	$78.00	$136.00



BRASS BIBBS, STOPS, ETC.

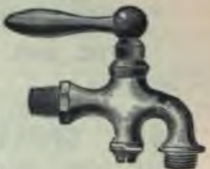
SCREWED FOR IRON PIPE.

FIC. 573.



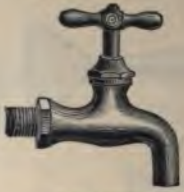
PLAIN BIBB.
LEVER HANDLE.

FIC. 724.



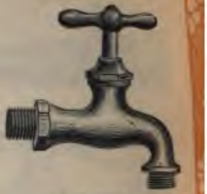
HOSE BIBB.
LEVER HANDLE.

FIC. 723.



PLAIN BIBB.
COMPRESSION.

FIC. 574.

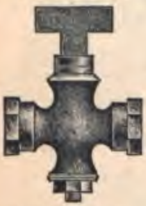


HOSE BIBB.
COMPRESSION.

Sizes and Prices.

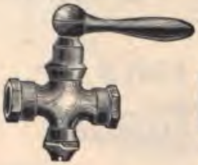
Size, inches, ...	⅜	½	¾	1	1¼	1½	2
Fig. 573, Finished, per doz. . .	13.00	16.00	26.00	39.00	64.00	90.00	180.00
Fig. 724, " " . .	. . .	17.00	28.00	42.00	68.00	96.00	190.00
Fig. 723, " " . .	10.00	11.00	20.00	37.00	. . .	. . .	. . .
Fig. 574, " " . .	. . .	12.00	22.00	40.00	. . .	. . .	. . .

FIC. 408.



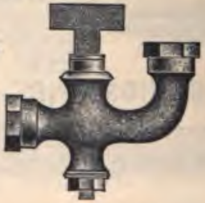
ROUGH STOPS.
T HANDLE.

FIC. 575.



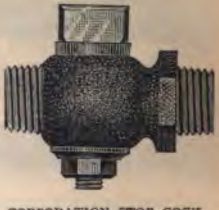
ROUGH STOPS.
LEVER HANDLE.

FIC. 754.



HYDRANT COCK.
CHECK AND WASTE.

FIC. 12.



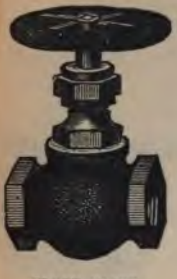
CORPORATION STOP COCK.
IRON PIPE THREAD BOTH ENDS.

Sizes and Prices.

Size, inches, ...	½	¾	1	1¼	1½	2
Figs. 575 { Rough Tee or Lever Handle, Per doz.	13.00	21.00	31.00	50.00	70.00	120.00
and 408, } with Check and Waste, ... "	14.00	22.50	33.00	53.00	74.00	130.00
Fig. 754, with Nut, Washer, Check and Waste "	15.00	23.00	36.00	60.00	. . .	. . .
Fig. 12, { Iron Pipe Thread, both ends, . Each	1.10	2.10	3.35	. . .	. . .	. . .
} With Coupling for Lead, . . "	1.35	2.50	3.85	. . .	. . .	. . .

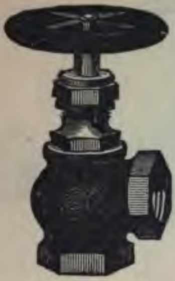
BRASS GLOBE VALVES, CHECK VALVES, ETC.

FIG. 753.



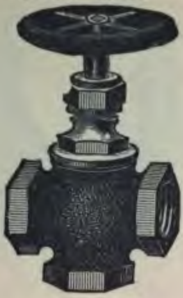
GLOBE VALVE.

FIG. 567.



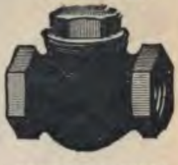
ANGLE VALVE.

FIG. 568.



CROSS VALVE.

FIG. 752.

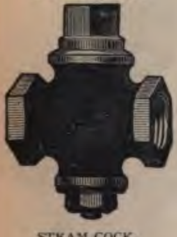


HORIZONTAL CHECK VALVE.

Sizes and Prices.

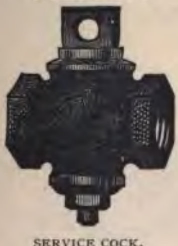
Size, inches	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Figs. 753, 567,	$0.60	$0.75	$1.00	$1.35	$1.80	$2.80	$3.90	$5.90	$11.75	$16.00
Fig. 752,	.50	.60	.85	1.15	1.55	2.30	3.25	5.20	10.00	14.00
Fig. 568,	. . .	1.00	1.50	2.00	2.50	3.50	5.00	8.00	16.00	24.00

FIG. 725.



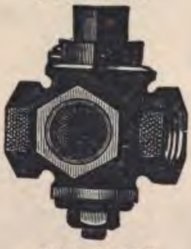
STEAM COCK.

FIG. 727.



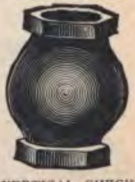
SERVICE COCK.

FIG. 726.



3-WAY STOP COCK.

FIG. 572.



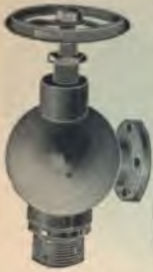
VERTICAL CHECK VALVE.

Sizes and Prices.

Size, inches,	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Fig. 725,	$0.70	$0.75	$1.10	$1.50	$2.25	$3.75	$4.80	$7.25	$14.00	$20.00
Fig. 727,	.55	.65	.75	1.00	1.40	2.20	3.00	5.00	10.00	15.00
Fig. 726,	. . . .	. . . .	1.65	2.25	3.40	5.50	7.00	10.00	18.00	26.00
Fig. 572,	.50	.60	.85	1.15	1.55	2.30	3.25	5.20	10.00	14.00

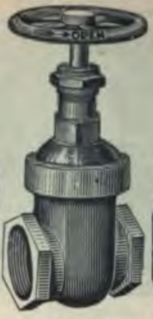
IRON AND BRASS GATE VALVES.

FIG. 406.



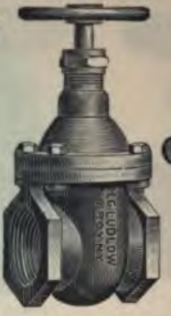
HEAVY IRON BODY HYDRANT GATE VALVE.

FIG. 26.



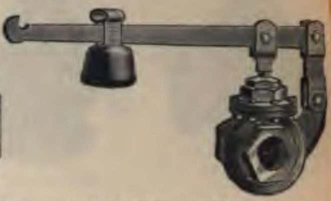
LUDLOW DOUBLE GATE VALVE, BRASS.

FIG. 27.



LUDLOW DOUBLE GATE VALVE, IRON, BRASS MOUNTED.

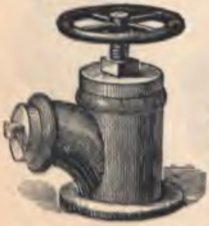
FIG. 405.



HEAVY BRASS SAFETY VALVE.

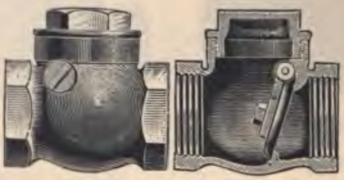
Size, inches	½	¾	1	1¼	1½	2	2½	3	3½	4	5
Fig. 406, .	. .	. .	. .	. .	. . .	$15.00	$18.00	. . .	. . .	. . .	. . .
Fig. 26, .	$1.25	$1.65	$2.15	$3.15	$4.25	6.25	11.50	$16.00	$21.00	$35.00	$52.00
Fig. 27, .	. .	. .	. .	. .	6.00	7.00	10.50	13.00	16.50	18.00	25.00
Fig. 405, .	. .	. .	10.00	12.50	15.00	20.00	25.00	36.00	. . .	. . .	. . .

FIG. 781.



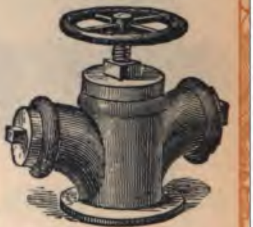
HYDRANT HOSE VALVE, SINGLE DISCHARGE.

FIG. 507.



LUDLOW HORIZONTAL CHECK VALVE, FULL OPEN WAY.

FIG. 781.



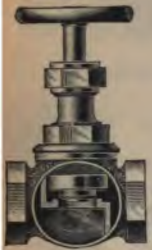
HYDRANT HOSE VALVE, DOUBLE DISCHARGE.

Size, inches, ...	¾	1	1¼	1½	2	3	4	6
Fig. 507, Brass, ...	$1.75	$2.25	$3.00	$4.00	$6.00	. . .	. . .	. . .
Fig. 507, Iron Body, Brass Mounted, ...						$14.50	$20.75	$32.50

Fig. 781, Single, 2½-inch Outlet, 7-inch Flange, price, ... $11.00
Fig. 781, Double, " " " " " 12.00

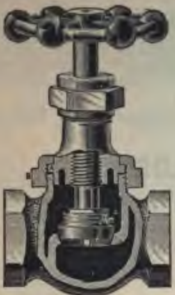
LUNKENHEIMER BRASS REGRINDING VALVES.

FIG. 5.



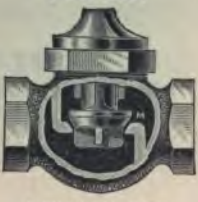
JENKIN'S DISK.

FIG. 6.



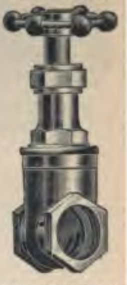
GLOBE.

FIG. 28.



HORIZONTAL WING

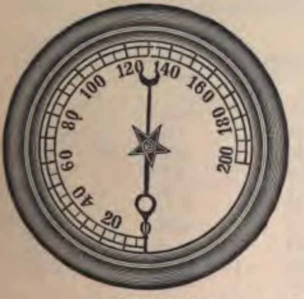
FIG. 7.



STRAIGHT-WAY.

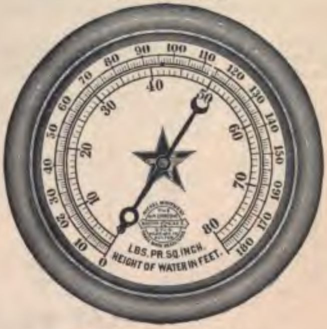
Size, inches, . . .	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Fig. 6, Globe,	$0.70	$0.70	$0.85	$1.15	$1.45	$1.80	$2.80	$3.80	$6.20	$12.00	$16.50
Fig. 5, Jenkin's Disk	. . .	1.10	1.25	1.60	2.20	2.80	4.00	5.50	8.00	15.75	22.00
Fig. 7, Str'ht-Way,	. . .	. . .	1.00	1.20	1.75	2.50	3.50	5.00	7.50	15.00	22.00
Fig. 28, Hor. Ch'k,	.50	.50	.55	.80	1.10	1.40	2.25	3.10	4.90	10.00	14.00

FIG. 30.



VACUUM GAUGE.

FIG. 31.


LBS. PR. SQ. INCH.
HEIGHT OF WATER IN FEET.

COMBINATION GAUGE.

Pressure Gauges, Including Cock.

Size Dial, inches	3	3½	4½	5	5½	6	6¾	8½	10	12
Fig. 30, Comp. Case,	$8.00	$9.00	$10.00	......	$12.00	$16.00	$20.00	$30.00	$40.00	$75.00
Fig. 30, Iron Case...	6.00	7.00	8.00	$8.00	10.00	13.00	16.00	22.00	32.00	50.00
Fig. 31, Comp, Case,	......	......	......	......	16.00	20.00	25.00	40.00	50.00	80.00
Fig. 31, Iron Case...	......	......	......	......	14.00	16.00	20.00	30.00	40.00	6

GOULDS PRICE LIST.

Butt-Welded; proved to 300 pounds per square inch, Hydraulic pressure.
Lap-Welded; " " 500 " " " " " "

BUTT-WELDED.

Revised List, March 23, 1887.

Nominal size inside Diameter.	Price per foot, Black.	Price per foot, Galvanized.	Price per foot, Tarred.	Thickness.	Nominal Weight per foot.	No. of Thr'ds per in. of screw
inches.				inches.	pounds.	
⅛	$ .04	$ .05	. . .	.068	0.24	27
¼	.04	.05	$ .04½	.088	0.42	18
⅜	.04	.05½	.05	.091	0.56	18
½	.05	.07	.06	.109	0.84	14
¾	.07	.09	.08½	.113	1.12	14
1	.09½	.12½	.11	.134	1.67	11½
1¼	.12½	.17	.15	.140	2.24	11½

LAP-WELDED.

Nominal Size Inside Diameter.	Price per foot, Black.	Price per foot, Galvanized.	Thickness.	Nominal Weight per foot.	No. of Threads per inch of Screw.
inches.			inches.	pounds.	
1½	$ .22	$ .25	.145	2.68	11½
2	.28	.32	.154	3.61	11½
2½	.44	.49	.204	5.74	8
3	.58	.64	.217	7.54	8
3½	.70	.86	.226	9.00	8
4	.85	1.00	.237	10.66	8
4½	1.00	1.25	.246	12.49	8
5	1.20	1.50	.259	14.50	8
6	1.65	2.00	.280	18.76	8

LAP-WELDED CASING.

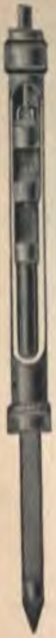
Nominal Inside Diameter.	Price per foot.	Actual Outside Diameter.	Nominal Weight per foot.
Inches.		Inches.	
[illegible]	.43	3½	4.28
[illegible]	.60	4½	6.17
[illegible]	.66	4¾	6.55
[illegible]	1.00	6	10.16

GOULDS PRICE LIST PIPE FITTINGS.

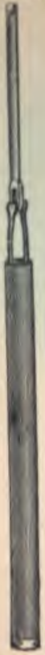
Size, inches,	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4
Couplings, Wrought,	5	6	7	10	13	17	21	28	40	60	80	1.00
" Galvanized,	7	8	10	13	18	25	32	45	65	90	1.10	1.40
" Mal. R. & L.,	4	6	9	12	18	25	36	44	....	....	....	...
" Galv. "	8	10	13	20	25	35	42	65	1.00	1.50	....	...
Elbows, Cast,	4	5	6	9	13	20	25	40	75	1.10	1.35	1.80
" Redc. or R. & L.,	5	6	7	11	16	23	29	46	85	1.25	1.50	2.10
" Malleable,	5	7	9	15	22	32	38	60	1.25	1.75	2 10	4.00
" Cast Galvanized,	6	9	12	18	30	45	55	85	1.60	2.35	3.10	4.10
Tees, Cast,	6	7	9	13	20	30	38	60	1 10	1.50	2.00	2.50
" Reducing,	7	8	11	15	23	35	44	70	1.25	1.75	2.30	2.90
" Malleable,	5	7	9	18	28	40	48	75	1.40	2.10	2.50	4.15
" Cast Galvanized,	8	13	17	25	40	60	85	1.20	2.25	2.85	3.80	5.25
Crosses, Cast,	8	10	12	18	28	40	50	80	1.50	2.20	2.70	3.50
" Reducing,	10	12	14	21	32	46	58	92	1.70	2.50	3.00	4.00
" Malleable,	6	8	11	20	30	42	55	85	2.00	3.10	4.00	5.75
" Cast Galvanized,	15	18	23	35	55	80	1.00	1.60	3.00	4.25	5.50	7.00
Bushings, Plain,	..	5	6	7	9	13	17	27	42	60	80	1.00
" Galvanized,	..	6	7	10	14	21	30	44	59	....	....	....
Reducers, Cast,	..	..	..	..	....	....	....	50	75	1.20	1.50	2.00
" Malleable,	..	6	9	12	18	25	36	50	....	....	....	....
" Galvanized,	..	8	11	16	25	35	45	60	85	1.30	1.90	2.50
Locknuts, Malleable,	4	4	6	7	8	10	12	25	....	....	....	....
" " Galvanized,	5	5	7	9	10	12	16	32	...	....	....	....
" Cast,	..	..	..	..	....	....	....	25	40	50	70	95
" Wrought,	8	9	10	12	15	20	25	30	35	45	....	....
Caps, Cast,	..	..	..	..	....	....	....	....	50	80	1.10	1.30
" Malleable,	3	3	5	8	11	15	22	30	....	....	....	....
" Galvanized,	5	5	7	10	14	20	30	40	65	1.00	1.30	1.60
Plugs, Plain,	3	3	4	5	6	10	13	20	35	50	75	85
" Galvanized,	5	5	6	8	10	15	23	35	57	95	1.35	1.60
Unions, Malleable,	15	18	20	28	34	46	60	80	1.50	2.10	3.00	4.00
" Galvanized,	20	24	27	37	50	70	90	1.20	2.25	2.90	4.50	5.60
Nipples, Short,	5	6	7	9	10	14	17	25	56	75	1.00	1.25
" Long,	7	9	10	11	15	20	25	35	75	95	1.25	1.60
" Short, Galvanized,	7	8	9	11	13	17	23	32	65	1.00	1.25	1.45
" Long, "	9	11	13	16	19	24	31	40	85	1.20	1.50	1.90

GOULDS TUBULAR WELL SUPPLIES.

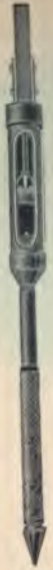
728.



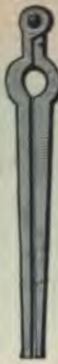
19.



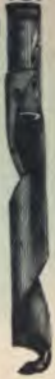
778.



23.



13.



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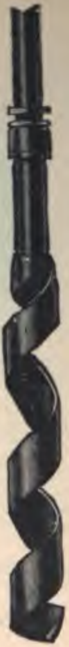

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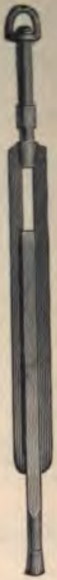

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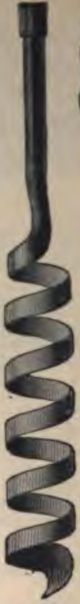
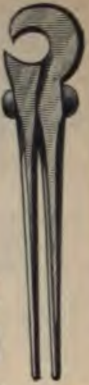
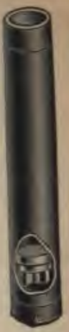


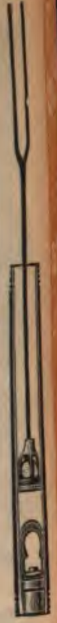
21.



33.



14.



219.

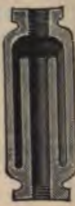
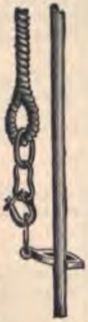


FIG. 24.



678.

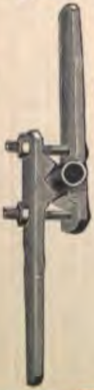
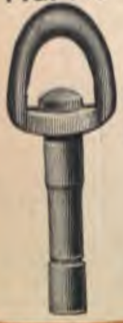
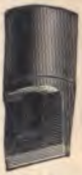


FIG. 11.



729.



22.

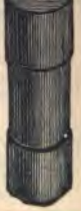


FIG. 25.

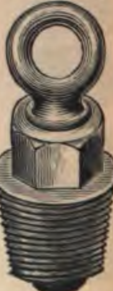
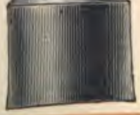
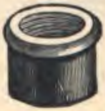


FIG. 16.



510.



GOULDS PRICE LIST OF TUBULAR WELL SUPPLIES.

FIG. 728. The N. and L. Tube Well Cylinder and Filter Point.

Diam. Cylinder.	Size Pipe.	Length.	Filter Point.	Price Each.
2 inch.	2 inch.	48 inches.	1¼x51 in.	$20.00
2½ "	2½ "	48 "	1¼x51 "	25.00
3 "	3 "	48 "	1½x63 "	40.00

FIG. 11. Pipe Swivels

No.	Size Pipe.	Price.
1	1 in.	$2.00
2	1 "	4.00
3	1¼ "	8.00

FIG. 25. Casing Swivels.

No.	Size Pipe.	Price.
1	2 in.	$4.00
2	2½ "	5.00
3	3 "	7.00

Goulds Earth Augurs.

Size, Inches....	2	2½	3	4	6
Fig. 13, Chisel Bit Augur, price each.......	....	$6.00	$ 6.75	$10.50	$25.00
Fig. 15, Ribbon Augur, "	$5.00	7.00	10.00	15.00	25.00
Fig. 32, Twist Augur, "	5.00	7.00	10.00	15.00	25.00

FIG. 19. Sand Bucket with Steel Cutter.

Size, inches.	1⅝	2	2½	2¾	4
Price	$7.00	$7.50	$8.00	$9.00	$10.00

FIG. 729. Sand Pump Drill with Leather Valve.

Size . . .	1x1¼ bit.	1¼x2 bit.	1½x2½ bit.	2x3 bit.
Price...	$1.25	$3.00	$4.50	$6.50

FIG. 33. Brass Sand Bucket or Pump.

Fitted for ½ inch gas pipe, for 1¼ inch Drive Well Point, net, ...	$2.50
" ½ " " " 1½ " " " "	3.50

FIG. 14. Yingling Cylinder for Deep Wells.

Size, inches, .	2	2½	3	3½
Price.........	$8.00	$10.00	$13.00	$16.00

FIG. 778. N. & L. Cylinder Combination for Shallow Wells.

Size, inches, ...	2	2½	3
Price complete...	$12.00	$15.00	$20.00

FIGS. 21 and 23. Lifting and Friction Tongs for 300 ft. Wells.

No.	Size Pipe.	Fig. 21.	Fig. 23.
1	¾ in.	$5.00	$5.00
2	1 "	6.00	6.00
3	1¼ "	7.50	7.50

FIG. 24. Rope Hook used in raising Sand Rods.

Price each....................	$2.00

FIG. 219. Sand Catcher for Drive Wells.

1¼ inch each.................	$2.00

FIG. 16. Steel Shoes used on Bottom Well Pipe.

Price, 2 inch, ...	$2.50

FIG. 510. Malleable Drive Cap.

Size, inches....	1¾	1½	2
Price..........	72	90	$1.55

FIG. 22. Steel Drift for cleaning out the inside of Pipe.

Size, inches, ...	2	2½	3
Price...........	$4.00	$6.50	$10.00

Goulds Gas Pipe Clamp.

FIG. 678, ... $5.00

Goulds Drill Jars with Swivel.

FIG. 20, for 1 inch Pipe, ... $7.50

GOULDS PRICE LIST PIPE TOOLS

LIGHTNING TAPS AND DIES.

Size, inches,	⅜	7-16	
Fig. 360. Die, Tap and Holder, complete	2.50	2.60	. .
" Die only	1.15	1.15	. .
" Tap only	.60	.70	. .
Size, inches,	⅜x14	7-16x12	½x12
Fig. 757. Pump Stock and Die	5.00	5 co	5.00

TONGS.

Number	1	1½	2	3	4	5
Takes Pipe from	⅛ to ¾	⅜ to 1	½ to 1¼	1 to 2	1½ to 3	2½ to 4
Fig. 377. Brown's Adjustable, price, each	1.30	1.65	2.00	3.00	6.00	11.00
Takes Pipe from	⅛ to ¾	¼ to 1¼	¼ to 1½	½ to 2½	¾ to 4	. .
Fig. 730. Acme, price, each	3.00	3.50	4.00	5.00	9.00	. .
Takes Pipe from			1 to 2	1¼ to 4	2 to 6	2½ to 8
Fig. 755. Robbins Chain			5.50	6.25	9.00	12.50

WRENCHES.

Size, inches,	⅛ to ½	⅛ to ¾	⅛ to 1	¼ to 1½	¼ to 2	¾ to 2½
Fig. 362. Stillson's	2.00	2.00	2.25	3.00	4.00	6.00
Size, inches,	4	6	8	10	12	....
Fig. 756. Baxter's Adjustable	.50	.75	1 00	1.50	2.00	....
Size	⅛ to ⅜	⅜ to ¾	½ to 1¼	1¼ to 2	2 to 3	....
Fig. 782. Alligator, per doz.,	4.00	12.00	24.00	36.00	54.00	....

PIPE CUTTERS.

Number	1	2	3
Size	⅛ to ¾	1 to 2	2 to 3
Fig. 512. Standwood's complete	1.50	2 25	7.00
" Blocks and Wheels	.40	.60	1.00
" Cutter Wheels	.12	.18	.25

STOCKS AND DIES.

Number	0	1	1½	1¾	2 with lea	3 der screw.
Pipe Sizes of Dies	⅛ to ½	½ to 1	¾ to 1¼	1 to 1½	1¼ to 2	2½ & 3
Dimensions of Dies	2x½	2½ to ¾	3x¾	3x¾	4x⅞	5x1¼
Fig. 372. Complete with R. H. Dies,	9.50	15.00	13.50	13.50	20.00	43.00
" " Plates without Dies	3.50	5.00	6.00	6.00	9.50	25.00
" " Extra Dies, R. or L.	1.50	2.00	2.50	2.50	3.50	9.00
" " Extra Bushings	.25	.35	.45	.45	.60	1.00
" " Extra Die Frames	....	.35	.40	.45	.50	.60

PIPE VISES.

Fig. 351.	**Saunder's (⅛ to 2-inch Pipe),**	$ 8.00
Fig. 374.	**Clark's (⅜ Rod to 2-inch Pipe),**	3.00
Fig. 211.	**Howard's Combination (⅜ to 3-inch Pipe),**	15.00

PUMP REPAIRS.

In the following tables will be found a condensed Price List of parts of our leading Pumps. Want of space has necessitated our omitting list of Repairs for special classes of Pumps, etc., heretofore included, but shall be pleased to furnish these in separate form upon application.

Levers or Handles.

Cistern Pumps, Figs. 198, 199, 200, 201, 202½ and 210—Nos. 0, 1 and 2,	$ .50
No. 3,	.60
No. 4,	.70
No. 5,	1.00
No. 6,	1.25
No. 8,	1.50
Pitcher Pumps, Figs. 205, 205½, 209 and 208—Nos. 1, 2, 3 and 4,	.60
No. 5,	.75
"Star" Well Pumps, Figs. 206, 207 and 845—Nos. 1 and 2,	.75
Nos. 3, 4 and 5,	.85
Fig. 234—Nos. 2 and 3,	.90
Nos. 4 and 5,	1.25
Yard Well Pumps, Figs. 227, 225 and 486,	1.50
"New Star" Well Pumps, Fig. 550	1.00
Figs. 551, 553, 847, 848 and 859,	1.25
Fig. 554,	1.40
Figs. 846, 849 and 850—No. 3,	1.00
Nos. 4 and 5,	1.25
"New Star" Well Force Pumps, Figs. 852, 882, 853 and 883,	1.25
Figs. 424 and 426,	1.40
Well Force Pumps, Fig. 854,	1.40
Fig. 240,	1.50
Fig. 242,	1.75
Fig. 699,	1.25
"Star" Well Force Pumps, Figs. 855, 857 and 858	1.40
Deep Well Pumps, Figs. 236, 237 and 887	1.75
Figs. 592 and 593	$2.75
Wind Mill Pumps, Fig. 762—No. 3,	1.25
Nos. 4 and 5,	1.40
Fig. 412,	1.40
Fig. 780,	1.75
Figs. 764 and 765,	2.00
Wind Mill Force Pumps, Figs. 422, 423, 401, 402 and 413,	1.40
Wind Mill Working Heads, Figs. 685, 689 and 690	1.40
Anti-Freezing Wind Mill Force Pumps,	
Fig. 862,	1.40
Fig. 866,	1.75
Fig. 863,	1.25
Figs. 670, 736 and 865—	
6 inch stroke,	1.50
10 inch stroke,	1.75
"Pacific" Force Pumps, Figs. 674 and 601—Nos. 2 and 4,	1.50
Nos. 6 and 8,	2.00
"Pacific" Force Pumps, Double-Acting, Figs. 638 and 629,	2.[illegible]0
Figs. 840 and 841,	1.[illegible]0
Hand Force Pumps, Figs. 390 to 399—	
Nos. 2 and 4,	1.[illegible]0
Nos. 6 and 8	1.[illegible]0
House Force Pumps, Figs. 440, 441, 442, 480, 481 and 281,	2.0[illegible]
House Force Pumps, Double-Acting, Figs. 271, 272, 273 and 276—Nos. 0, 1, 2, 3 and 4,	2.0[illegible]
Nos. 6, 8 and 10,	3.0[illegible]
Hand Boiler Pumps, Figs. 289 and 495,	2.0[illegible]

Fulcrums or Bearer Tops.

Cistern Pumps, Figs. 198, 199, 200, 201, 202½ and 210—Nos. 0, 1 and 2,	$ .70
No. 3,	.75
No. 4,	.80
No. 5,	.90
No. 6,	1.10
No. 8,	1.50
Pitcher Pumps, Figs. 205, 209 and 208, Open Top—Nos. 1 and 2,	.40
Nos. 3 and 4,	.50
No. 5,	$ .60
Figs. 205½, 209 and 208, Closed Top, No. 1,	.60
No. 2,	.70
No. 3,	.85
No. 4,	.95
"Star" Well Pumps, Figs. 206, 207 and 845—Nos. 1 and 2,	.75
Nos. 3 and 4,	.80
No. 5,	.90

Continued on next page.

Fulcrums or Bearer Tops.—Continued.

Fig. 234, Nos. 2 and 3,	$1.25
No. 4,	1.35
No. 5,	1.50
Yard Well Pumps, Figs. 227 and 225,	1.50
"New Star" Well Pumps, Fig. 550,	.90
Figs. 551, 847 and 859	1.10
Fig. 553,	1.25
Figs. 554 and 848,	1.35
Figs. 846 and 849—No. 3	.90
Nos. 4 and 5,	1.10
Fig. 850—No. 3,	1.15
Nos. 4 and 5,	1.35
"New Star" Well Force Pumps, Figs. 852, 882, 853 and 883	1.25
Figs. 424 and 426,	1.50
Well Force Pumps, Figs. 854, 242 and 699	1.25
Fig. 240,	1.50
"Star" Well Force Pumps, Figs. 855, 857 and 858,	1.25
Deep Well Pumps, Figs. 592, 593 and 763,	3.00
Wind Mill Pumps, Fig. 762—	
No. 3, 6 inch stroke,	1.25
Nos. 4 and 5, 6 inch stroke,	1.35
Nos. 4 and 5, 10 inch stroke,	1.50
Fig. 412, 6 inch stroke,	1.35
10 inch stroke,	1.50
Fig. 780,	2.50
Figs. 764 and 765, 6 inch stroke	3.50
10 inch stroke	4.25
Wind Mill Force Pumps, Figs. 422, 423, 401, 402 and 413, 6 inch stroke,	$1.50
10 inch stroke,	1.75
Wind Mill Working Heads, Figs. 685, 686, 689 and 690, 6 inch stroke,	1.50
10 inch stroke,	1.75
Anti-Freezing Wind Mill Force Pumps, Fig. 862, 6 inch stroke,	1.35
10 inch stroke,	1.50
Fig. 866,	2.50
Fig. 863,	1.25
"Pacific" Force Pumps, Figs. 674 and 601—Nos. 2 and 4,	2.00
Nos. 6 and 8,	3.50
"Pacific" Force Pumps, Double-Acting, Figs. 638 and 629,	2.00
Figs. 840 and 841,	1.50
Hand Force Pumps, Figs. 390 to 399—	
Nos. 0 and 2,	1.25
No. 4,	1.50
Nos. 6 and 8,	1.75
House Force Pumps, Figs. 440, 441, 442, 480, 481 and 281,	2.00
House Force Pumps, Double-Acting, Figs. 271, 272, 273 and 876—	
Nos. 0, 1, 2, 3 and 4,	2.00
Nos. 6, 8 and 10,	2.50
Hand Boiler Pumps, Figs. 289 and 495—Nos. 0 and 2,	1.25
No. 4,	1.50

Cylinders Only.

Cistern Pumps, Figs. 198, 199, 200, 201, 202½ and 210—No. 0, 2 inch,	$1.45
No. 1, 2¼ inch,	1.60
No. 2, 2½ inch,	1.80
No. 3, 2¾ inch,	1.90
No. 4, 3 inch,	2.25
No. 5, 3¼ inch,	2.40
No. 6, 3½ inch,	3.00
No. 8, 4 inch,	4.00
Pitcher Pumps, Figs. 205, 205½, 209 and 208—No. 1, 2½ inch,	1.50
No. 2, 3 inch,	1.75
No. 3, 3½ inch,	2.00
No. 4, 4 inch,	2.25
No. 5, 4½ inch,	2.50
"Pacific" Force Pumps, Figs. 674 and 601—Nos. 2 and 4, 2½ and 3 inch,	5.00
No. 6, 3½ inch,	7.00
No. 8, 4 inch,	8.00
"Pacific" Force Pumps, Double-Acting, Figs. 638 and 629—	
No. 2, 2½ inch,	$7.00
No. 4, 3 inch,	8.00
Figs. 840, 841 and 878—	
No. 2, 2½ inch,	8.00
No. 4, 3 inch,	9.00
Hand Force Pumps, Figs. 390 to 399—	
No. 0, 2 inch,	3.00
Nos. 2 and 4, 2½ and 3 inch,	4.00
No. 6, 3½ inch,	6.00
No. 8, 4 inch,	6.50
House Force Pumps, Figs. 440, 441, 442, 714, 480, 481, 281, 892, 712, 713, 449 and 466—No. 0, 2 inch,	3.50
No. 2, 2½ inch,	4.00
No. 3, 2¾ inch,	4.25
No. 4, 3 inch,	4.50
No. 5, 3¼ inch,	5.00
No. 6, 3½ inch,	6.00

Continued on next page.

Cylinders Only.—Continued.

House Force Pumps, Double-Acting, Figs. 271, 272, 273, 450, 451, and 452, Nos. 0 and 1, 2 and 2¼ inch,	$4.00
No. 2, 2½ inch,	5.50
No. 3, 2¾ inch,	6.00
No. 4, 3 inch,	6.50
No. 6, 3½ inch,	8.00
No. 8, 4 inch,	11.00
No. 10, 4½ inch,	14.00

Figs. 876, 879, 875 and 877,	
No. 2, 2½ inch,	$8.00
No. 4, 3 inch,	9.00
No. 6, 3½ inch,	12.00
No. 8, 4 inch,	16.00
Hand Boiler Pumps, Figs. 289 and 495—No. 0, 2 inch,	3.00
Nos. 2 and 4, 2½ and 3 inch,	4.00

Standards Complete.

"Star" Well Pump, Fig. 234—No. 2,	$5.00
No. 3,	5.25
No. 4,	5.75
No. 5,	6.00
Yard Well Pumps, Fig. 227—No. 5,	8.00

No. 7,	$8.50
Fig. 225,	9.00
Well Force Pumps, Fig. 240,	13.00
Fig. 242,	10.00
Fig. 699,	11.00

Stocks Only.

"Star" Well Pumps, Figs. 206, 207, 234 and 845—No. 1,	$2.00
No. 2,	2.25
No. 3,	2.60
No. 4,	2.75
No. 5,	3.00
Yard Well Pumps, Fig. 227—No. 5,	4.00
No. 7,	4.50
Fig. 225,	4.50
"New Star" Well Pumps, Figs. 550 and 553,	3.75
Figs. 551, 554, 847 and 848,	4.25
Figs. 846, 849 and 850—No. 3,	3.75
No. 4,	4.25
No. 5,	4.75
"New Star" Well Force Pumps, Figs. 424 and 426,	4.75
Figs. 852 and 882,	5.25
Figs. 853 and 883—No. 1,	4.75
No. 2,	5.25
Well Force Pumps, Figs. 854, 855 and 699,	3.60
Fig. 240,	5.00
Fig. 242,	4.00
Well Pumps, Fig. 859—Top Section,	2.40
Bottom Section,	3.60

Fig. 486,	$5.00
Fig. 857,	6.50
Fig. 858—Top Section,	2.40
Bottom Section,	3.60
Deep Well Pumps, Figs. 236, 237 and 887—Top Section,	3.00
Bottom Section,	4.00
Figs. 592, 593 and 763—Top Section,	4.00
Bottom Section,	6.50
Wind Mill Pumps, Figs. 762 and 780—	
No. 3,	3.75
No. 4,	4.25
No. 5,	4.75
Fig. 412—Top Section,	2.40
Bottom Section,	3.60
Figs. 764 and 765—Top Section,	4.00
Bottom Section,	6.50
Wind Mill Force Pumps, Figs. 422 and 423—No. 1,	4.75
No. 2,	5.25
Fig. 401,	6.50
Fig. 402—Top Section,	2.40
Bottom Section,	3.60
Fig. 413,	6.00

Bases and Bottom Caps.

Cistern Pumps, Figs. 198, 199, 200, 201 and 210—Bases, Nos. 0, 1 and 2,	$ .75
No. 3,	.85
Nos. 4 and 5,	1.00
No. 6,	1.25
No. 8,	1.75

Fig. 202½, Bottom Caps—	
Nos. 0, 1, 2, 3 and 4,	$ .50
Nos. 5 and 6,	.75
No. 8,	1.00
Pitcher Pumps, Figs. 205, 205½ and 209, Bases—No. 1,	1.00

Continued on next page.

Bases and Bottom Caps.—Continued.

No. 2,	$1.10
No. 3,	1.25
No. 4,	1.50
No. 5,	1.75
Ditto for Brass Valve Seats—No. 1,	.80
No. 2,	.90
No. 3,	1.00
No. 4,	1.15
No. 5,	1.50
Fig. 208, Vacuum Base—No. 1,	1.60
No. 2,	1.75
No. 3,	2.00
"Star" Well Pumps, Figs. 206, 207, 234 and 845—Nos. 1 and 2,	.75
No. 3,	.85
Nos. 4 and 5,	1.00
Yard Well Pumps, Figs. 225 and 227,	1.50
Well Force Pumps, Figs. 242 and 699,	1.25
Fig. 240,	1.50
Wind Mill Pump, Fig. 413,	2.00
Wind Mill Working Heads, Figs. 685, 686 and 690, Bases,	2.00
Fig. 689, Bottom Cap,	1.00
"Pacific" Force Pumps, Fig. 674, Bases—Nos. 2 and 4,	2.00
Nos. 6 and 8,	2.25
Fig. 601, Bottom Caps–Nos. 2 and 4,	.75
Nos. 6 and 8,	1.25
"Pacific" Force Pumps, Double-Acting, Fig. 638, Bases—No. 2,	2.25
No. 4,	2.50
Fig. 629, Bottom Caps—No. 2,	.75
No. 4,	$1.00
Figs. 840 and 878, Bases—No. 2.	2.75
No. 4,	3.00
Fig. 841, Bottom Caps—No. 2,	1.00
No. 4,	1.25
Hand Force Pumps, Figs. 390, 392, 394, 396 and 398, Bases—Nos. 0 and 2,	1.10
No. 4	1.25
No. 6,	1.75
No. 8,	2.00
Figs. 391, 393, 395, 397 and 399, Bottom Caps—Nos. 0, 2 and 4,	.50
No. 6,	.85
No. 8,	1.50
House Force Pumps, Figs. 440, 441, 442, 714, 480, 481, 281, 892, 712, 713, 449 and 466, Bottom Caps—Nos. 0, 2, 3 and 4,	1.00
Nos. 5 and 6,	1.25
House Force Pumps, Double-Acting, Figs. 271, 272, 273, 450, 451 and 452, Bottom Caps—Nos. 0, 1, 2, 3 and 4,	1.50
No. 6,	1.75
No. 8,	2.25
No. 10,	2.75
Figs. 876, 879, 875 and 877, Bottom Caps—No. 2,	1.00
No. 4,	1.25
No. 6,	1.75
No. 8,	2.00

Plungers, with Rods.

Cistern Pumps, Figs. 198, 199, 200, 201 and 202½—No. 0, 2 inch,	$ .70
No. 1, 2¼ inch,	.75
No. 2, 2½ inch,	.80
No. 3, 2¾ inch,	.90
No. 4, 3 inch,	1.00
No. 5, 3¼ inch,	1.15
No. 6, 3½ inch,	1.30
No. 8, 4 inch,	$1.50
Pitcher Pumps, Figs. 205, 205½, 208 and 209—No. 1, 2½ inch,	.80
No. 2, 3 inch,	1.00
No. 3, 3½ inch,	1.30
No. 4, 4 inch,	1.50
No. 5, 4½ inch,	1.75

Plungers Only, No Rods.

Well Lift and Force Pumps. See Cylinder Plungers only, "A" style,	
"Pacific" Force Pumps, Figs. 674, 601—Nos. 2 and 4, 2½ and 3 inch,	$1.00
No. 6, 3½ inch,	1.25
No. 8, 4 inch,	1.50
"Pacific" Force Pumps, Double-Acting, Figs. 638, 629, 841, 840 and 878,	1.00
Hand Force Pumps, Figs. 390 to 399—Nos. 0, 2 and 4, 2, 2½ and 3 inch,	1.00
Nos. 6 and 8, 3½ and 4 inch,	$1.50
House Force Pumps, Figs. 440, 441, 442, 714, 480, 481, 281, 892, 712, 713, 449 and 466—Nos. 0, 2, 3 and 4, 2, 2½, 2¾ and 3 inch,	1.00
Nos. 5 and 6, 3¼ and 3½ inch,	1.50
House Force Pumps, Double-Acting, Figs. 271, 272, 273, 450, 451, 452, 876, 879, 875 and 877—Nos. 0, 1, 2, 3 and 4, 2, 2¼, 2½, 2¾ and 3 inch,	1.00

Continued on next page.

Plungers Only, No Rods.—Continued.

No. 6, 3½ inch,	$1.25
No. 8, 4 inch,	1.50
No. 10, 4½ inch,	$2.50
Hand Boiler Pumps, Figs. 289 and 495,	2.75

Lower Valves.

	2 to 3 in.	3¼ to 4 in.
Cistern Pumps,	$ .25	$ .35
Pitcher Pumps,	.25	.35
Well Lift and Force Pumps,	.25	.35
"Pacific" Force Pumps, S. A.	.25	.35
Hand Force Pumps,	$ .25	$ .35
House Force Pumps, Single Acting,	.25	.35.
Hand Boiler Pumps,	2.00	2.00

Brass Valve Seats.

Cistern Pumps, Figs. 198, 199, 200, 201, 202½ and 210—Nos. 0, 1, 2, 3, and 4,	$ .75
No. 5,	1.00
No. 6,	1.25
No. 8,	1.75
Pitcher Pumps, Figs. 205, 205½ and 209—No. 1,	.75
No. 2,	$ .90
No. 3,	1.10
No. 4,	1.20
No. 5,	1.30
Hand Force Pumps, Figs. 390 to 399—	
Nos. 0 and 2,	1.00
Nos. 4 and 6,	1.25
No. 8,	1.50

Cylinder Shells or Bodies.

Size, inches,	2¼	2½	2¾	3	3¼	3½	3¾	4
Figs. 609 and 610 (Gas Set),	$1.50	$1.60	$1.80	$2.00	$2.25	$2.50	$2.80	$3.25
Figs. 611 and 612 (Shallow Well),	2.30	2.45	2.45	2.70	3.00	3.25	3.55	3.80
Figs. 613, 614 and 548 (Deep Well),	2.80	3.05	3.30	3.55	3.80	4.05	4.15	4.30
Fig. 620 (Wood Pump),	1.50	1.60	1.80	2.00	2.25	2.50	2.80	3.25

Cylinder Plungers Only, no Rods.

Size, inches,	2¼	2½	2¾	3	3¼	3½	3¾	4
"A" style (Gas Set),	$ .75	$ .80	$ .90	$1.00	$1.15	$1.30	$1.40	$1.50
"B" style (Shallow Well),	2.00	2.10	2.10	2.30	2.45	2.70	2.95	3.20
"C" style (Deep Well),	2.30	2.45	2.70	2.95	3.20	3.45	3.60	3.95
"E" style (Special),	1.00	1.00	1.00	1.25	1.35	1.45	1.60	1.75
"F" style (Wind Mill), Brass,	1.90	2.00	2.15	2.25	2.40	2.50	2.65	2.75
"G" style (Wood Pump),	.75	.80	.90	1.00	1.15	1.30	1.40	1.50
"H" style (Double-Acting),	1.00	1.00	1.00	1.00	1.25	1.25	1.50	1.50

Cylinder Attachments or Caps.

Figs. 609, 610, 611, 612, 613, 614, 616 and 617—	Top	Bottom
2¼, 2½, 2¾ and 3 in.,	$ .75	$1.00
3¼, 3½, 3¾ and 4 in.,	1.00	1.25

Cylinder Lower Valves.

Figs. 609, 610, 611, 612, 613, 614, 616 and 617—2¼, 2½, 2¾ and 3 in.,	$ .25
3¼, 3½, 3¾ and 4 in.,	.35

Piston or Connecting Rods.

Cistern Pumps, Figs. 198, 200, 201 and 202½,	$ .15
Pitcher Pumps, Figs. 205, 205½, 208 and 209,	.10
Well Lift Pumps, Figs. 206, 207, 227, 550, 551, 847, 845, 846, 849, 859, 486,	.75
Well and Wind Mill Force Pumps, Polished Round Rods, Figs. 225, 848, 852, 882, 854, 240, 424, 426, 850, 855, 853, 883, 857, 858, 422, 423, 401, 402, 413,	$ .60
Wind Mill Working Heads, Polished Round Rods, Figs. 685, 689 and 690,	.60
Deep Well Pumps, Polished Iron Rods, Figs. 236, 237, 592, 593, 887, 763, 764 and 765,	.60
Well and Wind Mill Pumps, Long, Flat Rods, Figs. 553, 554, 762, 412, 780,	.75

Continued on next page.

Piston or Connecting Rods.—Continued.

Well and Wind Mill Force Pumps, Short, Flat Rods, Figs. 424, 426, 764, 422, 423, 401, 402, 413, 765,..	$ .60
Wind Mill Working Heads, Short, Flat Rods, Figs. 685, 689 and 690,	.60
"Pacific" Force Pumps, Figs. 674 and 601, Short, Flat Rods,	.60
Brass Cased Rods—Nos. 2 and 4,.	1.00
No. 6,	1.25
No. 8,	1.75
"Pacific" Force Pumps, Double-Acting, Figs. 638, 629, 840 and 841, Short, Flat Rods,	.60
Brass Cased Rods,	1.00
Hand Force Pumps, Figs. 390 to 399, Brass Cased Rods—Nos. 0, 2 and 4,	$1.00
No. 6,	1.25
No. 8,	1.75
House Force Pumps, Figs. 440, 441, 442, 714, 480, 481, 892, 712, 713, 449 and 466, Brass Cased Rods, Nos. 0, 2, 3 and 4,	1.00
Nos. 5 and 6,	1.25
House Force Pumps, Double-Acting, Figs. 271, 272, 273, 450, 451, 452, 876, 879, 875 and 877, Brass Cased Rods—Nos. 0, 1, 2, 3 and 4,	1.00

Caps and Glands.

	Cap.	Gland.
Well Force Pumps, Figs. 242 and 699,	$ .50	.75
Yard Well Pumps, Figs. 225 and 240,	.75	1.00
Well Force Pumps, Figs. 852, 882, 854, 424, 425, 426, 855, 853, 883, 857 and 858,...		1.00
Deep Well Pumps, Figs. 236, 592 and 764,	.50	
Figs. 237 and 887,	.75	.50
Figs. 593, 763 and 765,..	.90	1.25
Wind Mill Force Pumps, Figs. 422, 423, 401, 402 and 413,		1.00
Wind Mill Working Heads, Figs. 685, 686, 689 and 690,		1.00
"Pacific" Force Pumps, Figs. 674 and 601—Nos. 2 and 4,		1.00
Nos. 6 and 8,		1.25
"Pacific" Force Pumps, Double-Acting, Figs. 638, 629, 840, 841 and 878, ...		1.00
Hand Force Pumps, Figs. 390 to 399—No. 0,	$ .50	.75
Nos. 2 and 4,	.50	1.00
Nos. 6 and 8,	.75	1.25
House Force Pumps, Figs. 440, 441, 442, 714, 480, 481, 281, 892, 712, 713, 449 and 466—Nos. 0, 2, 3 and 4,...	.65	1.00
No. 5,	.75	1.25
No. 6,	1.00	1.25
House Force Pumps, Double-Acting, Figs. 271, 272, 273, 450, 451, 452, —Nos. 0, 1, 2, 3 and 4	.65	1.00
Nos. 6,	1.00	1.25
Nos. 8 and 10,	1.25	1.25
Figs. 876, 879, 875 and 877, —No. 2 and 4,		1.00
No. 6 and 8,		1.25
Hand Boiler Pumps, Figs. 289 and 495,	.50	.50

Brass Bowls.

House Force Pumps, Single and Double-Acting, Figs. 440, 441, 271, 272, etc.,	$1.25

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House Force Pumps, Single-Acting, Figs. 440, 441, 442, 714, 480 and 281,	$1.00
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House Force Pumps, Double-Acting, Figs. 271, 272, 273, 452, 876, etc.,—Nos. 0, 1, 2, 3, 4 and 6	$ .75
Nos. 8 and 10	1.00

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House Force Pumps, Single-Acting, Figs. 440, 441, 442, 714, 480, 281, etc.	$ .60
House Force Pumps, Double-Acting, Figs. 271, 272, 273, 452, 876, etc.,—Nos. 0, 1, 2, 3 and 4	

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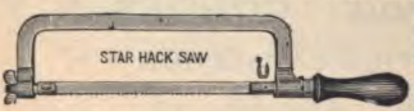

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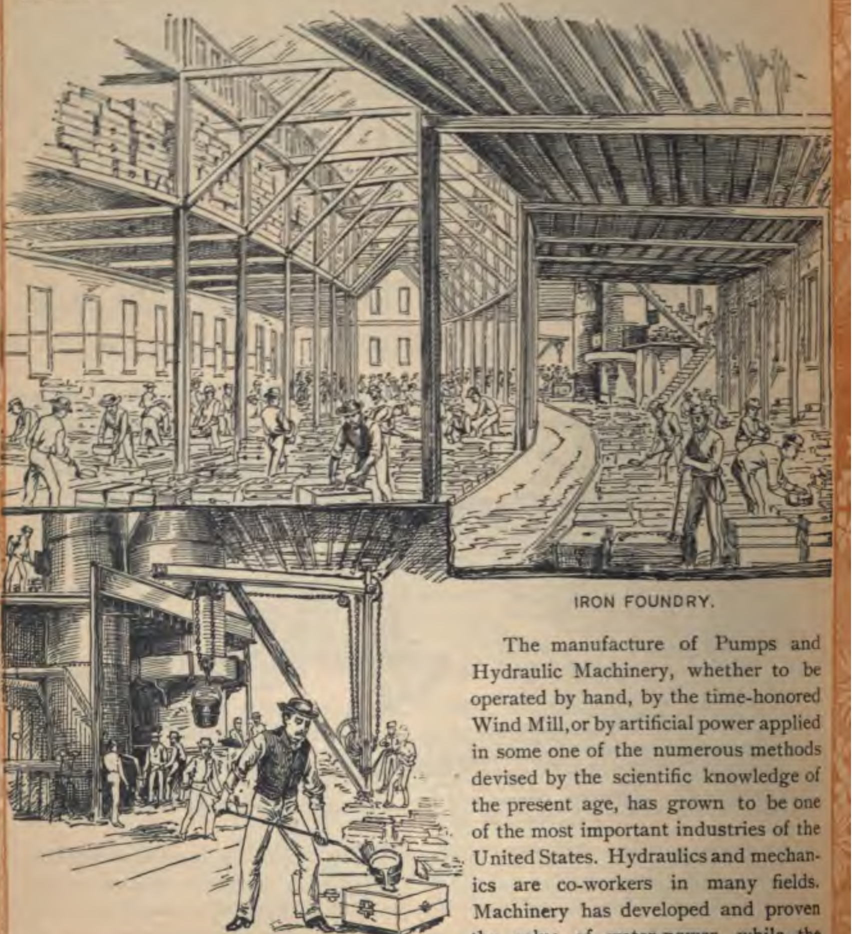

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The view of the Works among the first pages of this book conveys only an imperfect idea of the extent of this great establishment. A much better impression may be obtained from a personal inspection of the various departments into which it is divided, with a hasty glance at each of the principal features under the guidance of one familiar with the details of the business. The buildings comprising the plant are pleasantly located upon the banks of the Seneca River, and a portion of them on an island in mid-stream.

Conveniently accessible on the first floor of the main building are the private offices of Mr. James H. Gould, the President; Mr. Seabury

S. Gould, the Secretary and Treasurer; and the General Offices of the Company. Starting from these pleasant rooms the first point to be visited is the Iron Foundry. This is a mammoth building, constructed during the season of 1886, and entirely covers the island mentioned. The Cayuga and Seneca branch of the Erie Canal brings the heaviest part of the raw material — iron — and fuel to the door, a factor of no mean importance in a business in which freight rates are a large item.

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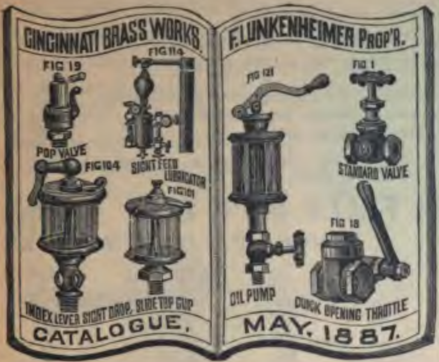

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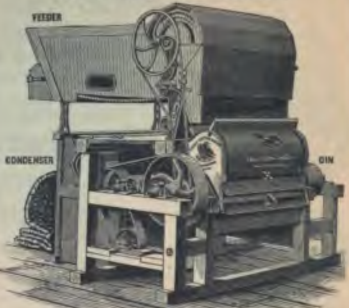

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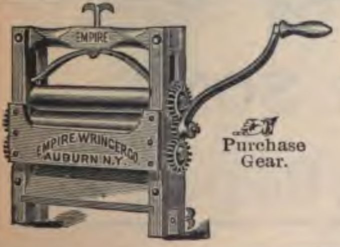

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Blue Paint.

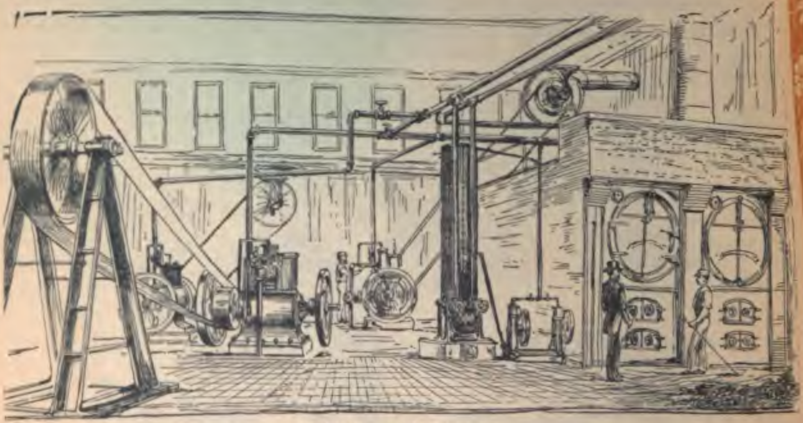
capacity for melting twenty-five tons of iron daily; the smaller one is used especially for melting metal for Bells. In the afternoon when the casting is done the Foundry presents a picture of animation most interesting to the visitor. There is a peculiar fascination in watching the molten metal as it flows from the immense cupolas into large ladles, giving off a shower of golden sparks, and is then poured by muscular men into the sand moulds to become possibly a delicate valve or perhaps the largest part of a Fire Rotary Pump.

In this connection an important point in the work in this department should be noted; with but few exceptions all the patterns used for molding are of iron — very highly finished — which gives a much smoother and more perfect casting than can be obtained in any other manner. Conveniently near the Foundry is the Core Room and Oven where are fashioned and baked the many curious forms which represent the inside mold or shape of Cylinders, etc. Some of these cores look indeed like veritable Pumps made of sand, while others to the unpracticed eye suggest nothing in the way of a familiar shape. The Oven referred to is a vast room or vault of iron and stone i which the cores, many at a time, are placed for baking.

BRASS FOUNDRY.

Interesting as are the manœuvers of the small army of workmen in the Foun there are other equally important processes that command attention and repay ins tion. From the Foundry the castings are taken to a large room filled with sl revolving cylindrical-shaped machines, which produce a clatter of unearthly sounds almost ear-splitting. But the object of the machines in this room is something more than simply making a noise. The sand-covered castings are put into these revolving boxes and "rattled" until cleaned of the sand which adheres to the iron when taken from the mold.

From the "Rattling Room" the castings are next taken to the Grinding Room, where all the burrs, seams, etc., are removed on emery wheels. After this process the castings begin to assume shape, even to the uneducated eye, and to look as though they might be used for something besides "old iron."



ENGINES AND BOILERS.

Iron is not the only metal used in pump-making, and before following further the progress of the heavier parts turn aside for a moment and crossing a court enter the Brass Foundry. Here the bustle and apparent confusion of the great Iron Foundry is succeeded by a quieter atmosphere, and delicacy of workmanship replaces the noise and rough handling which attend the making of the heavier parts of machinery to which the product of both departments is equally necessary. In this model Brass Foundry are four cupolas underneath the floor, which is of cast iron. In them may be melted half a ton of brass daily, which is cast into working parts of the machinery produced by the company. An idea of the value of this metal may be gained from the statement that the copper alone used in this Foundry costs thousands of dollars each week. Instead of being melted in the cupolas as is the case in the Iron Foundry, the metal here is melted after being placed in crucibles of graphite, from which it is poured into the flasks or molds as shown in the illustration.

Plain and Cone Bearings, **$75.** 1888. *Ball Bearing,* **$100.**

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(A Single Hose.)

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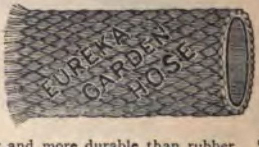
"EUREKA MILL HOSE."

This is a Seamless-Woven and Rubber-Lined Hose, stronger than three-ply rubber hose, yet lighter and smaller.

It has given satisfaction and is more durable than rubber. Sizes—1¼, 1½, 2¼ and 2½ inches.

"EUREKA GARDEN HOSE."

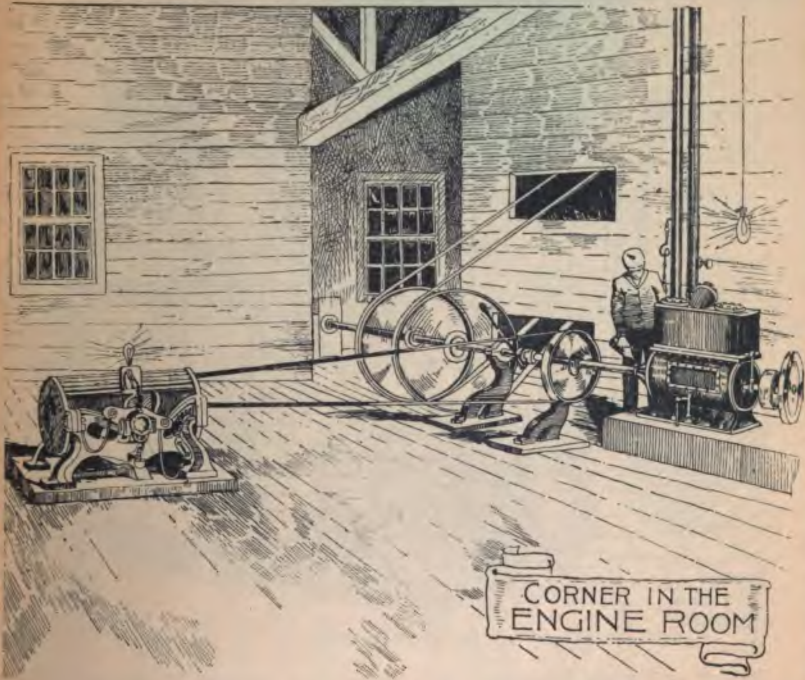


Better and more durable than rubber. Seamless-Cotton, Mildew-Proof and Rubber-Lined, in ½, ¾ and 1-inch sizes. It is *superior to best rubber hose* for durability and strength. It is mildew-proof and will stand over 500 lbs. pressure per square inch, and outlast rubber hose many times over. *Expose it to dry after use.* After use *do not reel up wet, but put this hose in sun and air where it can dry*, and it will last many years.

LIBERAL DISCOUNTS TO THE TRADE.

Manufacturers of Cotton and Linen Hose of Every Description.

The motive power department rarely fails to interest, and instruct, and the Engine-Room in this establishment contains features as attractive as the processes of pump-making. Two 100 Horse-Power boilers, which consume 1000 tons of coal each year, furnish steam for three machines close by, which from their appearance convey no idea of their use to one who has never seen the famous Westinghouse Engine. Reference to the view of the Engine-Room gives an idea of the general appearance of these machines, but even then the observer can form no conception of the vast amount of power stored in the limited space occupied by these queer-looking "double-barrelled" arrangements.

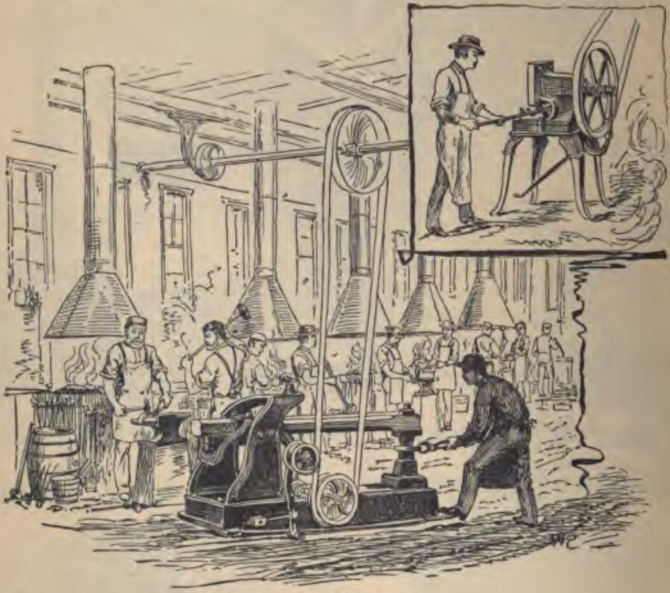


CORNER IN THE ENGINE ROOM

Each of these engines performs a special duty. The one shown in the sketch of a corner in the Engine-Room drives alternately the blower which furnishes the air bla
for the cupola in the Iron Foundry, and also a powerful electric-light dynamo supplyi
some 500 incandescent lights throughout the numerous buildings. With accuracy

may be said that no dark nooks or corners about these Works conceal defects in material or workmanship.

The exhaust steam from the engines passes through a heater and thence through the heating coils in the various shops, the water being finally returned through steam traps to the supply cistern. In addition to the great power furnished by the three engines above noted, two Leffel turbine water wheels of 100 horse-power each, and two steam engines of 60 horse-power each, are held in reserve.



BLACKSMITH SHOP.

Passing next to the Blacksmith Shop the visitor is reminded of how truly during all ages the mechanical arts, and more especially the iron industries, have been represented in the typical form of Vulcan at his anvil. A still further reminder of the great advance in the art is furnished in watching one of the many huge trip hammers as it answers to the touch of a skilled workman, fashioning great bars of iron into shape by strokes varying from those so light that a watch would not suffer by contact to others measured by thousands of pounds. A g [illegible] he illustration shows this department

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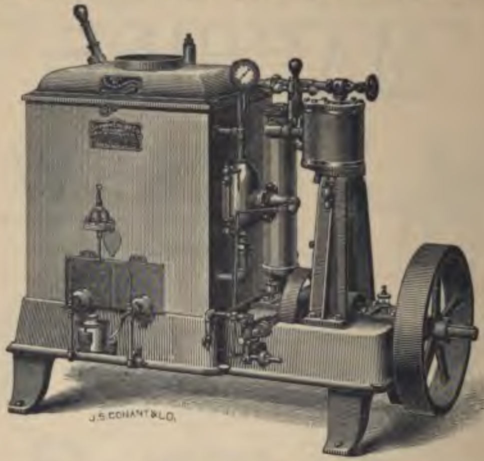

J.S. CONANT & CO.

A PERSONAL WORD TO THOSE WHO WANT SMALL POWER.

WE KNOW by our own experience that long descriptions and testimonials a read, so we will be brief.

THE SHIPMAN ENGINE,

using kerosene oil for fuel, has been in actual service, doing hard work, for four We have experimented, tested, and improved, and have now a long experience i business and perfected machines. We know that we can serve all persons who need of small, automatic, economical power, to their satisfaction.

The following extract, from a letter just received, suggests the quality of our E and our rule of doing business: "The engine does finely, and allow me to say am in every way satisfied with the manner in which you have dealt with me. thing has been straight-forward and honorable. It will give me pleasure to recom the Shipman Co. and their engines, should opportunity present itself."

Can we serve you? Perhaps a friend of yours may be in want of an engine f shop or for use in a boat. The Shipman is the best engine for use in a boat in the

SHIPMAN ENGINE CO.

No. 92 Pearl Street, **BOSTON, MA**

eniently arranged and supplied with all appliances for the extensive production of ngs.

'he lower Machine Shops, facetiously called "The Kitchens" by the workmen, are ıext point of interest. Here the first machine work is done on the castings, ding the boring, drilling, planing and heavy lathe work. Several planers for ıthing the various parts and lathes of all sizes occupy the various parts of the room.

DRILLING AND PLANING.

Near these shops is the Water Wheel Room. Here is a large No. 5 Goulds Rotary Fire Pump, which supplies stand pipes on the several floors, and the automatic sprinklers placed throughout the building for protection against fire. The arrangements of the pump and surroundings may be quite y understood by reference to the engraving on page 146.

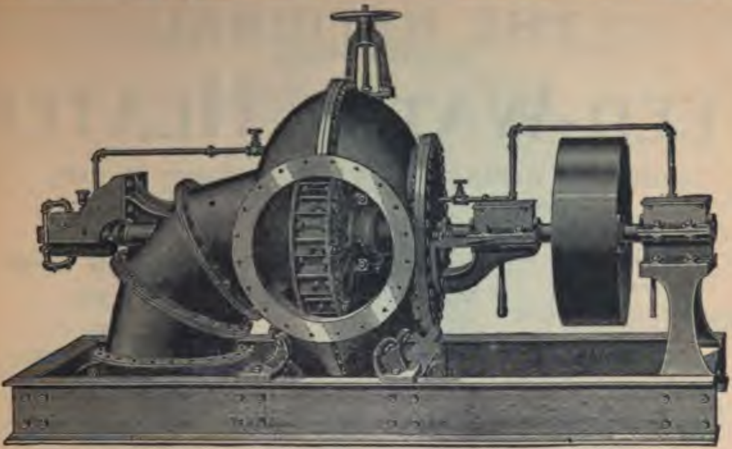
ext in order in the progress of the work are the Lathe Room proper, where most of ıthe work is done.

ssing from these rooms to the Rotary Pump Department, where both hand and r pumps similar in action to that noted above are built, examine briefly important res of construction, which have given the Gould's Rotary a world-wide reputation. very essential points are illustrated. Planing the Cams or Pistons so that they ıesh into each other accurately, thus creating a perfect vacuum when in motion ; ıoring the Cases to receive these Cams. Both of these parts are finished with the utmost care by skilled workmen, for it is this perfect adjustment of parts which the Goulds Rotary of an excellence never attainable where cams and cases are si "sand ground" in the rough, as is the practice of many makers. An idea of the nu of parts in the construction of a Goulds Rotary may also be had from one of the ac panying illustrations.

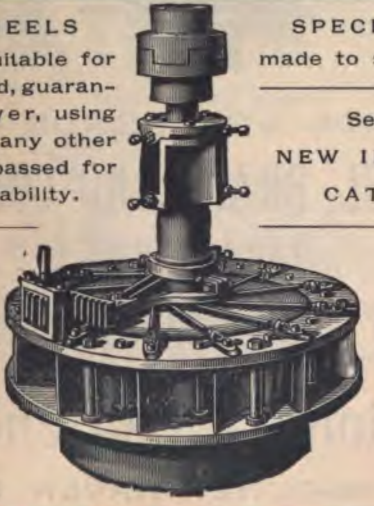
Thus far some of the special features in the building of a perfect Pump have given attention, and brief as has been the inspection of salient points there ar

PLANING ROTARY CAMS OR PISTONS.

numerous stages of development in the evolution of the completed article that are w of at least a hasty glance. In the Constructing Department, which requires the s of two floors in the main building, many of the parts heretofore explained ir several processes are finally put together. A view of one portion of these rooms sl the cylinder and valves of the "Star" Double-Acting Pump in the foreground; or bench parts of the well known "Challenge," while on the floor is an array of Stand Air-Chambers, etc. The scenes of activity in this department are even more attra than can be shown in an engraving. All Pumps are carefully tested to provide ag



THE OLD . . RELIABLE JAMES LEFFEL TURBINE WATER WHEEL



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of every style, suitable for any height of head, guaranteeing more power, using less water than any other wheel, and unsurpassed for economy and durability.

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made to suit any location.

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STANDARD WHEELS

with vertical shaft for heads of 3 to 100 feet.

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FEED-WATER HEATER

DELIVERING WATER TO THE BOILER AT 210° TO 212°.

OVER

1,500 HEATERS

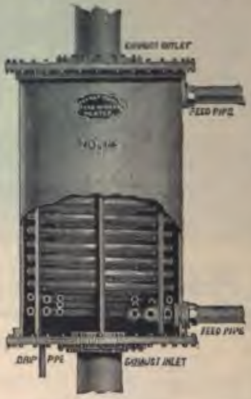
AGGREGATING

20,000 Horse-Power

IN USE.

18 SIZES MANUFACTURED

8 TO 2,000 HORSE-POWER.



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perfections of any character in the castings and working parts, and none of the fin-
ed work can leave the department until it has received the superintendent's approval.

BORING ROTARY CASES.

ROTARY PUMP PARTS.

A glance into the Leather Room, where the article named may be seen in all shapes
m the cropped sides to the smallest valve or bit of packing, reveals nothing specially

attractive to the eye, yet no material which enters into the construction of the goods passes a closer inspection. What is seemingly the best Pump may be condemned because of poor packing or valves. Of an entire side of leather it is safe to say that not over one half is suitable for the intended use, and fifty per cent. of this is wasted in cutting.

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"No admittance" conspicuously posted on a door, which is also kept locked lest the warning be disregarded, calls attention to a particularly important department. An exception is made in the case of special visitors, who find in the "Sanctum" or

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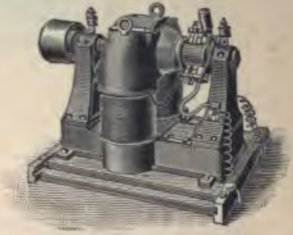

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Tool-Room all the finer tools, like gauges, drills, templets, and supplies such as screws, bolts, bits, etc., which are allowed to be taken out only under a most complete system of checking. The restrictions of such careful record seem unnecessarily severe where good will and faith is apparent on every hand, but when the reason is stated, the foresight which provides for one of the most valuable details of the business is sure of commendation. All the gauges, templets, dies, taps, etc., either represent the standard of size for some part of a pump, or are used in finishing that part, and it is this careful preservation of an absolutely correct standard that enables this firm to maintain the claim of perfect interchangeability of parts and that repairs will always fit.

While looking for a moment into the Brass Room, where the brass parts are finished, it should be stated that all working parts in the Goulds Pumps are of brass. The Cylinders are lined with brass, the Plungers are made of it, and wherever brass can be used to advantage it is found, because the requirements of the perfect pump of to-day demand that this metal be used instead of iron.

TOOL ROOM.

"As mighty oaks from little acorns grow," so do many great undertakings start from small beginnings. Nowhere in an establishment of this character is this better exhibited than in the Pattern Room, of which a glimpse is shown in the engraving. Here the ideas of a skillful superintendent and hydraulic engineer are first given definite shape. Beautifully carved pieces of wood that attract the eye either represent new designs or parts for improvements which the company is constantly making, and all play a most important part in the embryo beginning of the product, for from these the finished iron patterns, used in molding as before noted, are made.

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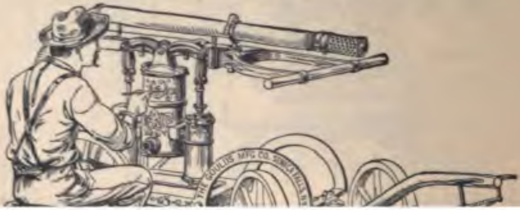
. . . U. S. A. . . .

The Paint Shop, in which the final touches are given, and the General Warehouse and Packing Department occupy a large building. Here are finished Pumps for every purpose, ready to be sent to all parts of the world. There is a strong feeling that one is renewing the study of geography when shown Anti-freezing Pumps for northern climes, Standards and Cylinders for the tropics, with Horse-Powers and other appliances for conveying or raising water by hand, animal, or other power, as may be necessary.

BRASS ROOM.

All these are packed with the greatest care, which the experience of years has taught to be absolutely necessary, especially in sending goods out of the country for Export Trade. Each part is carefully numbered when packed, and as all parts are made so as to be interchangeable, this forms no small item in the labor of proper shipment. Not only in the careful packing of the goods, but in every department are found the evidences of careful thought and intelligent execution, which show that even the smallest details of the company's business are looked after with unremitting attention.

CORNER OF WOOD PATTERN ROOM.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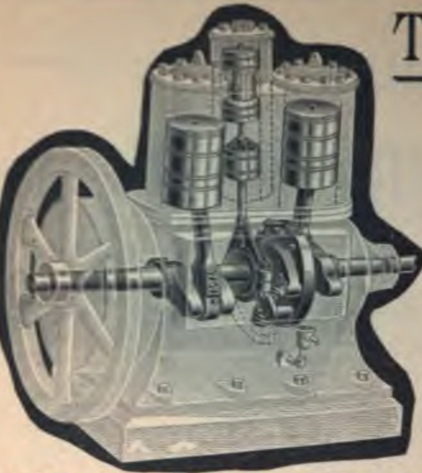

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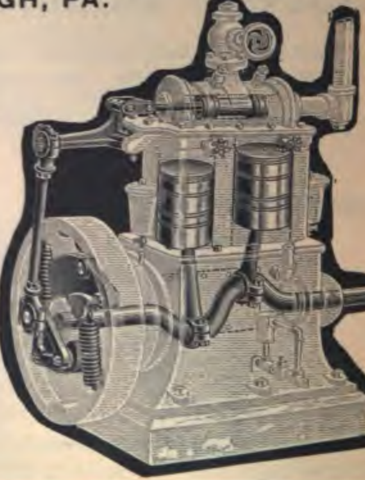
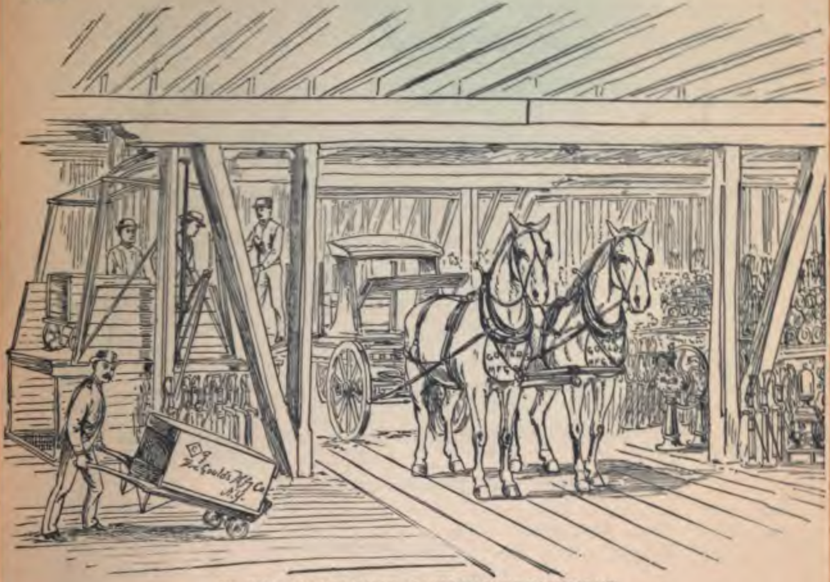


what channels the final result is attained. Hence, "Honor to whom honor is due," for skilled manual labor is as necessary to skilled mental labor as the hand to the brain, the one in any case incomplete without the other. What is accorded the efforts of the workmen should also be given to the four quarters of the globe, each one of which is laid under contribution to produce materials from which these pumps are made. The great iron mines of the United States, the copper mines near the great lakes of North America; the tin mines of England; or the vast forests of South America, which furnish all the rubber gum for valves and other parts, all have no mean share in the finished work.


The Goulds Mfg Co N.Y.

IN THE WAREHOUSE SHIPPING DEPARTMENT.

In a brief sketch it has not been possible to follow the same part or Pump from the rough shape in the Foundry to the finished form in the Shipping Department. And while all the details have not been seen or recorded, it is to be hoped that some idea has been obtained of the various processes in this great establishment, in which there are no secrets, unless it be that of an honest and intelligent endeavor to faithfully serve all patrons, which has been the keystone of the success and popularity of Goulds American Pumps.

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TEN MILLION
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A radiator's weakness is represented by its number of parts and style of joints. The wrought-iron radiator has six joints where the Bundy has but one, therefore the liability of the Bundy Radiators leaking is in the ratio of 6 to 1 in its favor. Furthermore, the Bundy Radiator is tested to 100 lbs. pressure, and is carefully fitted before being shipped.

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It matters not whether our clients reside in the States of Connecticut, Massachusetts or New-York, near to us or **3,000** miles away — **distance is no obstacle** — we can serve them equally as well, as upwards of 2,000 of our clients residing in every State and Territory in the Union, Canada, Nova Scotia, and the Brazils can testify; and wherever our designs are carried out clients are pleased, press and public extol on the art and conveniences, being the wonder and admiration of every one; and builders everywhere are unanimous in their statements that they are the best that they were ever engaged to execute, and that the drawings, specifications and all the instruments of service are rendered in the most thorough, complete and practical manner for them to work from and to enable them to put the work together without the slightest error, and every one may certainly rest assured that we shall not, at this stage of our practice, do a service in any manner that will not give the fullest satisfaction. Our study is faithful service for our clients' best interests.

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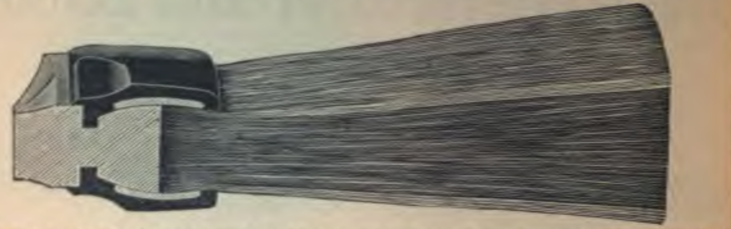

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USEFUL INFORMATION—WATER.

Doubling the diameter of a pipe increases its capacity four times. Friction of liquids in pipes increases as the square of the velocity.

The mean pressure of the atmosphere is usually estimated at 14.7 lbs. per square inch, so that with a perfect vacuum it will sustain a column of mercury 29.9 inches, or a column of water 33.9 feet high.

To find the pressure in pounds per square inch of a column of water, multiply the height of the column in feet by .434. Approximately, we say that every foot elevation is equal to ½ lb. pressure per square inch ; this allows for ordinary friction.

To find the diameter of a pump cylinder to move a given quantity of water per minute (100 feet of piston being the standard of speed), divide the number of gallons by 4, then extract the square root, and the product will be the diameter in inches of the pump cylinder.

To find quantity of water elevated in one minute running at 100 feet of piston speed per minute. Square the diameter of the water cylinder in inches and multiply by 4. Example: Capacity of a 5 inch cylinder is desired. The square of the diameter (5 inches) is 25, which multiplied by 4, gives 100, the number of gallons per minute (approximately).

The area of the Steam Piston, multiplied by the steam pressure, gives the total amount of pressure that can be exerted. *The area of the water piston*, multiplied by the pressure of water per square inch, gives the resistance. *A margin* must be made between the *power* and the *resistance* to *move* the pistons at the required speed—say from 20 to 40 per cent., according to speed and other conditions.

To find the capacity of a cylinder in gallons. Multiplying the area in inches by the length of stroke in inches will give the total number of cubic inches ; divide this amount by 231 (which is the cubical contents of a U. S. gallon in inches), and product is the capacity in gallons.

The capacity per minute will be determined by multiplying this product by number of strokes cylinder is working per minute.

To find the horse power necessary to elevate water to a given height. Multiply the number of gallons per minute by 8.35, weight of one gallon, and this result by total number of feet water is raised (that is, from surface of the water to the highest point to which the water is raised), and you have the power in foot pounds. Divide by 33,000 and you have the horse power. One horse power is equal to about five men. To the theoretical power a liberal allowance for friction, etc., always wants to be added.

Weight and Capacity of different Standard Gallons of Water.

	Cubic Inches in a gallon.	Weight of a Gallon in pounds.	Gallons in a Cubic Foot.	Weight of a cubic foot of water, English standard, 62.321 lbs. Averdupois.
Imperial or English .	277.274	10.00	6.232102	
United States . . .	231.	8.33111	7.480519	

A "miner's inch" of water is approximately equal to a supply of 12 U. S. gallons per minute.

Table of Areas of Circles from 2 to 14 Inches Diameter.

Diameter.	Area.	Diameter.	Area.	Diameter.	Area.
2 inches.	3.1416	3¾ inches.	11.044	7 inches.	38.484
2¼ "	3.9760	4 "	12.566	7½ "	44.178
2½ "	4.9087	4½ "	15.904	8 "	50.265
2¾ "	5.9395	5 "	19.635	8½ "	56.745
3 "	7.0686	5½ "	23.758	9 "	63.617
3¼ "	8.2957	6 "	28.274	9½ "	70.882
3½ "	9.6211	6½ "	33.183	10 "	78.540

TABLE SHOWING THE NUMBER OF GALLONS DISCHARGED PER MINUTE

BY A SINGLE-ACTING PUMP OF A GIVEN DIAMETER AND STROKE, AT TEN STROKES PER MINUTE.

Length of Stroke in Inches.

	Inches.	4	5	6	7	8	9	10	Inches.
Diameter of Pump Barrel, Inches.	1½	.306	.382	.459	.535	.612	.688	.765	1½
	1¾	.416	.521	.625	.729	.833	.937	1.041	1¾
	2	.544	.680	.816	.952	1.088	1.224	1.360	2
	2½	.850	1.062	1.275	1.487	1.700	1.912	2.125	2½
	3	1.224	1.530	1.836	2.142	2.448	2.754	3.060	3
	3½	1.666	2.082	2.499	2.915	3.332	3.748	4.165	3½
	4	2.176	2.720	3.264	3.808	4.352	4.896	5.440	4
	4½	2.754	3.442	4.131	4.819	5.508	6.196	6.885	4½
	5	3.400	4.250	5.100	5.950	6.800	7.650	8.500	5
	5½	4.114	5.142	6.171	7.199	8.228	9.256	10.285	5½
	6	4.896	6.120	7.344	8.568	9.792	11.016	12.240	6
	7	6.664	8.330	9.996	11.662	13.328	14.994	16.660	7
	8	8.704	10.880	13.056	15.232	17.408	19.584	21.760	8
	9	11.016	13.770	16.524	19.278	22.032	24.786	27.540	9
	10	13.600	17.000	20.400	23.800	27.200	30.600	34.000	10
	Inches.	4	5	6	7	8	9	10	Inches.

	Inches.	12	14	15	16	18	20	24	Inches.
Diameter of Pump Barrel, Inches.	1½	.918	1.071	1.147	1.224	1.377	1.530	1.836	1½
	1¾	1.249	1.457	1.562	1.666	1.874	2.082	2.499	1¾
	2	1.632	1.904	2.040	2.176	2.448	2.720	3.264	2
	2½	2.550	2.975	3.187	3.400	3.825	4.250	5.100	2½
	3	3.672	4.284	4.590	4.896	5.508	6.120	7.344	3
	3½	4.998	5.831	6.247	6.664	7.497	8.330	9.996	3½
	4	6.528	7.616	8.160	8.704	9.792	10.880	13.056	4
	4½	8.262	9.639	10.327	11.016	12.393	13.770	16.524	4½
	5	10.200	11.900	12.750	13.600	15.300	17.000	20.400	5
	5½	12.342	14.399	15.427	16.456	18.513	20.570	24.684	5½
	6	14.688	17.136	18.360	19.584	22.032	24.480	29.376	6
	7	19.992	23.324	24.990	26.656	29.988	33.320	39.984	7
	8	26.112	30.464	32.640	34.816	39.168	43.520	52.224	8
	9	33.048	38.556	41.310	44.064	50.572	55.080	66.096	9
	10	40.800	47.600	51.000	54.400	61.200	68.000	81.600	10
	Inches.	12	14	15	16	18	20	24	Inches.

The quantities given in the Table are in gallons, and are calculated for single-acting Pumps at ten strokes per minute. The quantity for any other number of strokes per minute may be found by multiplying the quantity noted in the Table by the ratio of 10 to the given number of strokes; for double-acting Pumps, the quantity noted in the Table should be doubled.

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Approximate Quantities of Water Delivered per Hour at Different Elevations by Goulds Single-Acting Pump Cylinders Operated by Wind Mills or Engines.

Diameter of Mill.	Max. Rev. per Minute.	25 FT. ELEVATION.			50 FT. ELEVATION.			100 FT. ELEVATION.		
		Diam. Pump Cyl.	Stroke.	Gallons per hr.	Diam Pump Cyl.	Stroke.	Gallons per hr.	Diam. Pump Cyl.	Stroke.	Gallons per hr.
8 feet.	50	2½ in.	4 in.	255	2 in	4 in.	162	1½ in.	4 in.	90
10 "	45	3 "	6 "	459	3 "	6 "	460	2½ "	6 "	330
12 "	40	5 "	6 "	1200	3½ "	6 "	600	3 "	6 "	460
14 "	35	6 "	6 "	1500	4 "	6 "	682	3½ "	6 "	600

This table refers to no special make of Mill but is applicable to any.

Sizes of Pump Cylinders can be changed if desired, yet believe our apportionment will be found a fair guide as to power developed and required.

Approximate Heights Pumps May be Worked by Pony or Horse Gear.

The pony or horse in each case being estimated to walk at the rate of 3 miles per hour.

Diameter of Working Barrel or Cylinder, inches	2½		3½	4	5	6
Single-Barrel Pump worked by Pony Gear .	260 ft.	175 ft.	135 ft.	100 ft.	64 ft.	44 ft.
Double-Barrel " " " .	130 "	88 "	68 "	50 "	32 "	22 "
Single-Barrel Pump worked by Horse Gear,	520 "	350 "	270 "	200 "	128 "	88 "
Double-Barrel " " "	260 "	176 "	136 "	100 "	64 "	44 "

The above calculations are based upon strong, powerful horses or ponies being used. If inferior animals are substituted the heights given will of course not be attained.

Pressure Required at Nozzle and at Pump, with Quantity and Pressure of Water Necessary to Throw Water Various Distances Through Different Sized Nozzles—Using 2½ Inch Rubber Hose and Smooth Nozzles.

G. A. Ellis, C.E.

Size of Nozzles.	1 inch.				1⅛ inch.				1¼ inch.				1⅜ inch.			
Pressure at nozzle .	40	60	80	100	40	60	80	100	40	60	80	100	40	60	80	100
Pressure at Pump or Hydrant with 100 feet 2½ inch rubber hose . .	48	73	97	121	54	81	108	135	61	92	123	154	71	107	144	180
Gallons per minute .	155	189	219	245	196	240	277	310	242	297	342	383	293	358	413	462
Horizontal distance thrown, ...	109	142	168	186	113	148	175	193	118	156	186	207	124	166	200	224
Vertical dist. thrown,	79	108	131	148	81	112	137	157	82	115	142	164	85	118	146	169

POWER, SPEED AND CAPACITY OF GOULDS ROTARIES.

OPERATED UNDER VARYING CONDITIONS.

Size Pump.	Elevation, ft.	25	50	100	200	300	400
No. 1.	Rev. per Min.	250	300	350	400	400	400
	Capacity, Gals.	60	75	87	100	100	100
	Horse Power.	¾ H. P.	2 H. P.	5 H. P.	10 H. P.	15 H. P.	18 H. P.
No. 2.	Rev. per Min.	200	250	300	350	400	400
	Capacity, Gals.	100	125	150	175	200	200
	Horse Power.	1¼ H. P.	3 H. P.	7 H. P.	15 H. P.	20 H. P.	25 H. P.
No. 3.	Rev. per Min.	150	200	250	300	350	400
	Capacity, Gals.	150	200	250	300	350	400
	Horse Power.	2 H. P.	5 H. P.	12 H. P.	18 H. P.	25 H. P.	30 H. P.
No. 4.	Rev. per Min.	300	300	350	400	400	400
	Capacity, Gals.	500	500	470	540	540	540
	Horse Power.	8 H. P.	18 H. P.	38 H. P.	50 H. P.	60 H. P.	75 H. P.
No. 5.	Rev. per Min.	300	300	300	300	300	300
	Capacity, Gals.	750	750	750	750	750	750
	Horse Power.	10 H. P.	20 H. P.	40 H. P.	80 H. P.	90 H. P.	100 H. P.

PERCENTAGE OF SAVING OF FUEL.

BY HEATING FEED-WATER—(Steam at 60 lbs.)

Final Temperature	INITIAL TEMPERATURE.											
	32°	40°	50°	60°	70°	80°	90°	100°	120°	140°	160°	180°
60°	2.39	1.71	0.86									
80°	4.09	3.43	2.59	1.74	0.88							
100°	5.79	5.14	4.32	3.49	2.64	1.77	0.90					
120°	7.50	6.85	6.05	5.23	4.40	3.55	2.68	1.80				
140°	9.20	8.57	7.77	6.97	6.15	5.32	4.47	3.61	1.84			
160°	10.90	10.28	9.50	8.72	7.91	7.09	6.26	5.42	3.67	1.87		
180°	12.60	12.00	11.23	10.46	9.68	8.87	8.06	7.23	5.52	3.75	1.91	
200°	14.30	13.71	13.00	12.20	11.43	10.65	9.85	9.03	7.36	5.62	3.82	1.96
220°	16.00	15.42	14.70	14.00	13.19	12.33	11.64	10.84	9.20	7.50	5.73	3.93
240°	17.79	17.30	16.42	15.69	14.96	14.20	13.43	12.65	11.05	9.37	7.64	5.90
260°	19.40	18.85	18.15	17.44	16.71	15.97	15.22	14.45	11.88	11.24	9.56	7.86

PERCENTAGE OF SAVING OF FUEL.

BY DIRECT ACTING STEAM AND GEARED PUMPS.

Manner of Feeding Boiler.	Temperature of Fahr.	Rel. am'ts coal required eq'l times.	Fuel saved over first case, per ct.
1. Direct acting steam pump, no heater.	60°	100	0.
2. Injector, no heater, ...	150°	98.5	1.5
3. Injector, with heater, ...	200°	93.8	6.2
4. Direct acting steam pump, with heater.	200°	87.9	12.1
5. Geared pump, actuated by the main engine, with heater, ...	200°	86.8	13.8

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"B. W. H." Rubber Garden Hose,

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Extra "No Seam" Belt, Perforated Mats.

TABLE OF ACTUAL TESTS.

MADE WITH GOULDS RAMS.

As an aid to purchasers, and for our own satisfaction and information, we have conducted very lately a large number of actual experiments with our Rams under varying conditions, and give below the results of a few of these tests, hoping they will afford an idea to the inquiring purchaser of what may be expected of Rams where something like similar conditions prevail.

Size of Ram.	Length of Drive Pipe.	Head or fall of Drive Pipe.	Length of Dis. Pipe.	Height or lift of Dis. Pipe.	Water supplied Ram prMin.	Wat. Dis. at p't of Deliv. per Min.	No. strokes of Impetus V'lve Min.
2	70 feet.	12 feet.	100 feet.	50 feet.	2.1 gal.	.3 gal.	54
3	70 "	10 "	200 "	100 "	2.4 "	.2 "	68
4	70 "	12 "	200 "	100 "	5.6 "	.5 "	70
5	70 "	13 "	200 "	100 "	7. "	.8 "	92
5	126 "	20 "	400 "	200 "	14. "	1.5 "	56
6	70 "	10 "	100 "	50 "	12.4 "	2.4 "	90
6	125 "	25 "	400 "	200 "	18. "	2. "	64
7	70 "	11 "	100 "	40 "	33. "	7.6 "	70
7	184 "	23 "	767 "	118 "	27. "	4.5 "	80
8	100 "	12 "	300 "	100 "	44. "	4. "	82

PARITIES OF EXCHANGE.

For the benefit of our numerous foreign correspondents, we give below our *Parities of Exchange*, showing the value of American money in Pounds Sterling. In making the computation, we have done so on the basis of $4.80 (four dollars and eighty cents) to the £ (Pound Sterling), that being the amount generally realized. We consider these computations a safe average to guide our customers when making us remittances. At the left hand will be found the dollars, while opposite will be their equivalent in Pounds Sterling.

AMERICAN MONEY.	POUNDS STERLING. £1—$4.80.			AMERICAN MONEY.	POUNDS STERLING. £1—$4.80.			AMERICAN MONEY.	POUNDS STERLING. £1—$4.80.		
	POUNDS.	SHILLINGS.	PENCE.		POUNDS.	SHILLINGS.	PENCE.		POUNDS.	SHILLINGS.	PENCE.
$1		4	2	$14	2	18	4	$ 90	18	15	0
2		8	4	15	3	2	6	100	20	16	8
3		12	6	16	3	6	8	200	41	13	4
4		16	8	17	3	10	10	300	62	10	0
5	1	0	10	18	3	15	0	400	83	6	8
6	1	5	0	19	3	19	2	500	104	3	4
7	1	9	2	20	4	3	4	600	125	0	0
8	1	13	4	30	6	5	0	700	145	16	8
9	1	17	6	40	8	6	8	800	166	13	4
10	2	1	8	50	10	8	4	900	187	10	0
11	2	5	10	60	12	10	0	1,000	208	6	8
12	2	10	0	70	14	11	8				
13	2	14	2	80	16	13	4				

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